THE BUILDER

a Journal for the

ARCHITECT & CONSTRUCTOR

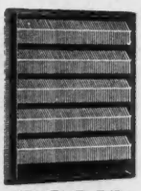
Vol. CLIX. No. 5092.
Ninety-Eighth Year.

FRIDAY, SEPTEMBER 6, 1940
REGISTERED AT THE GENERAL POST OFFICE AS A NEWSPAPER

PRICE NINEPENCE.

WALLBOARD SERVICE
MANY TYPES AND SIZES READY FOR IMMEDIATE DESPATCH
PHONE HOP 3311
Walter S. Fry LTD.
106-114 BORO HIGH STREET S.E.1

WAR EMERGENCY.
BASEMENT SHORES. "BIG BEN" EQUIPMENT FOR PROTECTION OF SKYLIGHTS, PLANT, ETC., AND OTHER AIR RAID PRECAUTIONARY MEASURES.
SCAFFOLDING AND LIGHT SCAFFOLDS FOR ALL PURPOSES.
'Phone: Walton-on-Thames 614 and 615



Problem of BLACKOUT VENTILATION solved!
Types for every purpose. Approved by Government Authorities and eminent scientists. Write for brochure.
COLT BLACKOUT VENTILATOR
Colt Ventilation Ltd., 104, Bush House, Strand, W.C.2.

The BOSTWICK GATE and SHUTTER CO. LTD
A.R.P. DOORS & SHUTTERS
GENERAL METALWORK
HYTHE ROAD, WILLESDEN, LONDON, N.W.10

ESCALATORS & LIFTS
J. & E. HALL Ltd.
ENGINEERS
DARTFORD, KENT, ENGLAND
Incorporating the business of
MEDWAY'S SAFETY LIFT CO., LTD.

The STEEL SCAFFOLDING CO. LTD.
"BIG BEN TOWERS,"
23 OATLANDS DRIVE, WEYBRIDGE, SURREY

DESIGNS COVERBOND FABRICS
"TWISTEEL" REINFORCEMENT LTD. ALMA STREET SMETHWICK STAFFS

STEELWORK BY SHARMAN
Also Manufacturers of
STEEL GAS AND SPLINTER PROOF DOORS
SWAN WORKS, HANWORTH, MIDDX.
Phones: Feltham 3007, Molesey 1789.

LONDON OFFICE: 10 Nicholson St. MANCHESTER OFFICE 42 CHARLES ST
A & P. STEVEN LTD
LIFTS
PROVANSIDE WORKS GLASGOW
Rolling Shutters, Lifts
IRON DOORS, STAIRS, GATES.
DENNISON, KETT & CO., LTD. Tel.: Reliance 1664
Kenoval House, 226-230, FARMERS RD., LONDON, S.E.5
LIFTS
PORN & DUNWOODY LTD
UNION WORKS,
BEAR GDNS., LONDON, S.E.1. WAT. 7107 (3 lines)

MARBOLITH
DERMAS IMPREGNATED FLOORING
OVERCOMES SHORTAGE OF TIMBER SUPPLIES
Particulars and Samples from:
THE MARBOLITH FLOORING CO. LTD.
29 ALBERT EMBANKMENT, LONDON, S.E.11
RELIANCE 2062-3.

PERMANITE ASPHALTE

LIFTS by MORRIS of LOUGHBOROUGH and 39 Victoria Street London S.W.1

POSITIVE WATERPROOFING AND DENSIFICATION OF CONCRETE AND ALL CEMENT WORK
TRICOSAL
A. A. BYRD & CO. LTD., 11, QUEEN VICTORIA STREET, LONDON, E.C.4. PHONE: CITY 3080

EVANS LIFTS LTD
ABBEY LANE, LEICESTER.
London Office 66 VICTORIA STREET, S.W.1.

ALDOUS—CAMPBELL LIFTS
TEL.: HOP 2727 (2 lines). LONDON, S.E.1

THE SEYSSEL & METALLIC LAVA ASPHALTE CO.
MR. G. F. GLENN. Proprietors
MOORGATE STATION CHAMBERS, E.C.2.
Telephone: METropolitan 0262.

RAGUSA ASPHALTE

READY FOR SERVICE

THE BIG THREE

CHYNALYKE ENAMEL

FAIRFIELD

TWOCOAT PAINT

FAIRFIELD

WASHABLE DISTEMPER

FAIRFIELD

FACTORY PAINT

FAIRFIELD

ALUMINIUM PAINT

Untarnishable—for use on Ironwork

FAIRFIELD

HEAT-RESISTING ALUMINIUM ENAMEL

FAIRFIELD

ANTI-CORROSIVE PAINT

for protection of Iron and Steel in Red or Grey

FAIRFIELD

ROAD PAINT

(British Standard Specification)
Types 2 & 3 only.

THE BIG THREE

The Fairfield Paint Co. Ltd., at the London Colour Works besides supplying from Stock have an unrivalled reputation for MAKING and MATCHING to INDIVIDUAL REQUIREMENTS and are therefore in a unique position to carry out ALL YOUR REQUIREMENTS

THE FAIRFIELD PAINT CO., LTD., WHITE HORSE LANE, MILE END ROAD, E.1.

Telephone: STEPNEY GREEN 3895. Telegrams: "CHYNALYKE, LONDON."

"the House of Fairfield"

THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

VOL. CLIX SEPTEMBER 6 1940 No. 5092

BUILDINGS AND BOMBING

SINCE our comments last week on the absence of technical information on the effect of bombing on buildings, there has appeared a Bulletin* under the title of "Structural Damage Caused by Recent Air Raids to Some Single-storey Buildings." This Bulletin is reprinted in full with two of the three diagrams elsewhere in this issue, and contains some data compiled by the Research and Experiments Branch of the Ministry of Home Security from typical damage caused by enemy bombs.

There is a good deal of interest in this Bulletin, notably the evidence of the resistance offered by properly-designed factory buildings to bombs, even when directly hit. Six examples of single-storey structures damaged by bombs are analysed in the Bulletin and the main conclusions reached show the importance of the three following points if the maximum resistance to collapse is to be obtained:

(1) Buildings should be fully framed. That is to say, *all* load should be carried by the steel framework and not part by the framework and part by the external walls.

(2) The steel framework should be as continuous as possible. That is to say, beams and girders should be joined together over supporting stanchions and beam to stanchion, and other connections should be as rigid as possible.

(3) A "safety valve" type of construction should be adopted wherever possible, but particularly in small buildings. That is to say, if brick panel walls are required for the protection of plant and personnel, they should be of the minimum height necessary to give the required protection. Above this height the walls should be of light sheeting designed to blow out under internal blast without damaging the structural framework.

It may be thought that these conclusions do not carry us very much farther than the state of knowledge existing before the air war, but at least they confirm in fact what had been suspected in theory, and as such are of considerable value.

The Research and Experiments Branch has, we consider, made a wise choice in selecting as an early subject for analysis the factory buildings, for from these come the weapons of war. But no less important is the safety of the men and women who are carrying this task forward. While at work, responsibility for their safety—so far as Government factories are concerned—is in the capable hands of the Passive Air Defence Department of the Ministry of Supply, but at home the duty to provide protection is that of the local authorities. Within the past few weeks there has been a vastly quickened tempo in so far as the building of communal shelters is concerned—due to the twin factors of the stoppage of the issue of the "Anderson" steel shelters and to the intensification of apparently indiscriminate bombing of residential areas.

What seems, therefore, an essential subject for analysis and report is the behaviour under bombing of the various types of communal shelter; of individual shelters (such as "Andersons," concrete or brick-and-concrete "pill-boxes"); and also the effect of bombs upon residential property having regard to the construction of "safe" rooms or spaces within the building. There have been, unfortunately, all too many subjects for this last form of research, which appears to us to be of the very greatest importance in view of the frequency of night raids and their consequent interruption of sleep. There is already a tendency—under the circumstances a sane and reasonable one—for householders to prefer the risks attendant upon sleeping within the partial protection of the house to the sleepless, often uncomfortable security of a shelter, private or communal. If present conditions persist, there will have to be facilities for sleep or at least rest without discomfort within the houses themselves, where this is structurally possible.

This is, of course, one of the principal objects of the R.I.B.A. Industrial Housing Competition, and it is regrettable that so little official information of the actual effect of bombing on houses has been made public. At the same time, the problem in regard to new houses is comparatively unimportant when considered in relation to the great mass of existing housing, and we trust, therefore, that the Ministry of Home Security gives immediate attention to the issuing of data on the problems which we have outlined.

* Bulletin No. C.8, "Structural Damage Caused by Air Raids to Some Single-Storey Buildings." (Ministry of Home Security, Research and Experiments Branch.)

ANDRE JOHN MESNARD MELLY
WENT FORTH LEADING THE BRITISH RED CROSS
TO SUCCOUR THE ABYSSINIANS IN THE DAY OF
CALAMITY + WITH THEM HE DIED 1936 AGE 37

MEMORIAL TABLET TO DR. A. J. M. MELLY, LIVERPOOL CATHEDRAL.

This memorial to Dr. A. J. M. Melly, who died while leading the British Red Cross Unit in the Abyssinian War in 1936, has recently been placed in the north choir aisle of Liverpool Anglican Cathedral. It is reproduced by courtesy of the Liverpool Cathedral Committee. The memorial, cut direct in Hopton Wood stone, is the work of Mr. E. Carter Preston.

NOTES AND NEWS

PRINCIPAL CONTENTS

ARTICLES — Page

BUILDINGS AND BOMBING ... 225
CORRESPONDENCE. Miners' Welfare Architectural Staff; Future Planning Policy; Preserving the Countryside 228
CONCRETE IN HOUSING. By Edric Neel, M.A., A.R.I.B.A. 229
AIR RAIDS STRUCTURAL DAMAGE 238
PROTECTION OF FACTORY GLAZING 241
SERVICE OF NOTICES—III. By W. T. Creswell, K.C., and N. P. Greig ... 242
NEWS OF CONSTRUCTION ... 243-5
WAGES, PRICES OF MATERIALS ... 246

ILLUSTRATIONS

HUDDERSFIELD PUBLIC LIBRARY AND ART GALLERY. By E. H. Ashburner, B.Arch., and G. H. Rowledge, A.R.I.B.A. 232
THE "BULL" INN, BIRCHWOOD. By Nowell Parr and Son 236
A CORBELLED ALL-BRICK SHELTER 237
THE "GRAVESEND" SHELTER. By G. E. Hill, B.A., Borough Engineer 240

R.I.B.A. Industrial Housing Competition.

THE assessors' award in this competition was announced on Wednesday afternoon, and is printed on page 228. An exhibition of the drawings opened on Thursday at the R.I.B.A., 66, Portland-place, W.1. 159 designs were submitted.

A.A. Member's Act of Bravery.

THE current issue of "The Architectural Association Journal" contains the following account of the act of bravery that gained the award of the M.C. for Lieut. Richard Robert Fairbairn, R.E., the first member of the A.A. serving in the Forces to be so decorated:—

"On May 18, Lieut. Fairbairn was ordered to demolish the bridges on the road and railway leading south-west from Peronne. Under his orders two road bridges were prepared and demolished in face of enemy fire; in one case the charge had to be relaid under fire and a successful demolition resulted. The preparation for demolition of the railway bridge was completed under fire and the charge failed to fire. Lieut. Fairbairn went on the bridge and fired the charge from close quarters. He was blown into the river. He then rallied his section and withdrew them under machine-gun attacks by low-flying aircraft with few casualties. It was due to the coolness, ingenuity and complete disregard for personal safety of this officer that his task was fulfilled and his section was extricated from a precarious situation."

No fewer than 115 members of the A.A. are now serving in H.M. Forces.

Unemployment in Building.

BETWEEN July 15 and August 12 there was a decrease of 27,814 in the number of unemployed persons on the registers of employment exchanges in Great Britain. There was a reduction of nearly 50,000 in the numbers of men and women registered as unemployed, but the numbers of boys and girls rose by nearly 22,000, owing mainly to the registration of juveniles who had reached the school-leaving age at the end of the summer term. The total of 799,452 persons registered as unemployed at August 12 was 432,240 less than the figure for August 14 last year. There was a reduction in unemployment in the building trade and public works contracting.

Comparative figures for building operatives are:—

August 12, 1940.	July 15, 1940.	August 14, 1939.
53,546.	55,960.	105,834.

London Wall at Tower Hill.

THE former Tower of London Station, facing Trinity-square Gardens on Tower Hill, is now in process of demolition by the L.P.T.B. Built of wood, it was opened between Mark-lane and Aldgate East Station on September 25, 1882. It was closed on October 12, 1884, and has not been opened since.

At the back of Trinity-place the railway construction was carried through a section of some 73 ft. of old London Wall. A writer in *The Times* recalls that it was during this construction that the original stone of the Classicianus tomb was found under the second bastion of London Wall in 1887. During the erection of the sub-power station of the L.P.T.B. in 1937, a second stone was found and joined its predecessor at the British Museum. The stones are a direct link with Queen Boudicca, or Boadicea, for Procurator Classicianus was sent to Britain from Rome to pacify the tribes after the revolt had been put down.

The removal of the wooden station building will permit a better view of the fine existing remains of London Wall at this point from Trinity-square. The freehold of all Trinity-place, including the station, is already vested in the Tower Hill Improvement Trustees. After the war this site will form an extension of the present Wakefield Garden on Tower Hill, and the foundations of the Roman wall will be fully disclosed by a trench on its eastern face.

The Welsh National Eisteddfod: a Competition.

THE Council of the National Eisteddfod offer prizes of £75 and £25 for competitive designs for a standardised pavilion to seat 12,000 with the necessary stage and other accommodation. The intention is to encourage the planning and design of a modern type of building that can be taken down, transported and re-erected from year to year in various centres.

The Council have appointed as adjudicators Mr. Percy Thomas, P-P.R.I.B.A., and Mr. T. Alwyn Lloyd, F.R.I.B.A. The conditions drawn up by them can be supplied to those who apply to the Secretary, Eisteddfod Office, Fronheulog Chambers, Colwyn Bay, Denbighshire, not later than March 1, 1941. Designs must be submitted by June 21, 1941.

COMING EVENTS

Tuesday, September 10.—Housing Centre. Tuesday Lunches: Mr. Ambrose Appelbe on "Housing Law." 1 p.m.

Thursday, September 19.—Architecture Club. Supper Discussion on "How Shall We Plan Our Buildings for Life After the War: On Our Holidays?" Charing Cross Hotel. 7.45 p.m.

Tuesday, September 24.—Housing Centre. Tuesday Lunches: Miss E. Moberly Bell on "Octavia Hill." 1 p.m.

Housing Centre Exhibitions.

A COLLECTION of studies by Town Planning Institute candidates, under the title of "London Begun Again," is now on view at the Centre until September 27. Each year it is customary for the Town Planning Institute to require candidates for examination to submit a "set piece" in the form of a solution of a planning problem in connection with some definite town. This year a new departure has been made which is of particular interest to Londoners. A contour plan of the cleared site was supplied, but entrants had entirely free minds, there being no evidence, unless the "Tidal River" were recognised as the Thames, that the problem set was the replanning of London. The requirements were to plan a proposed "Federal Capital City" with an initial population of 10,000 persons and an eventual one of 1,000,000.

"Protect Your Homes," an A.R.P. Exhibition, is on view until September 6 at the Mortimer Galleries, Hull.

A.A.S.T.A. and Rail Charges Inquiry.

THE Association of Architects, Surveyors and Technical Assistants has given notice that its representative wishes to give evidence before the public inquiry of the Charges (Railway Control) Consultative Committee. This Committee is investigating the request of the Railway Executive Committee to increase rail charges, and the terms of reference of the Committee are: (1) to investigate the estimates of the railways submitted, and (2) to make inquiries into the best methods of adjusting the increased charges. The inquiry does not extend to the question as to whether or not an increase in charges should be made. The hearing, which commenced on August 26, was adjourned until September 2 in order to give the opposition time in which to collect evidence. The A.A.S.T.A. wishes to show by figures the already heavy burden imposed on professional workers by the last 10 per cent. increase as evidence that the additional 7½ per cent. increase, if imposed at all, should not fall on the travelling public.

IN 1915

EXTRACT FROM *The Builder*, SEPTEMBER 3.

"A victory which consolidates a people without purifying it results in a self-advertising art, restless and ill at ease, such an art as we see in the battle-pieces of Versailles and the streets of Berlin. . . . The founder of a dynasty may employ great artists and architects, but unless he is an Augustus or a Lorenzo, content to be himself first citizen, not tyrant, glorying only in his country's past and future fame, his patronage will stifle all true art, his buildings be monuments of ignoble self-advertisement. The country and the ruler that make war in the spirit of Berlin or of Louis will gain no artistic glory when peace comes. . . . It is not for us to talk of peace when victory is still so far distant, but it is well to realise that on our attitude as a nation now depend our hopes of a noble peace in the future, which shall give our country that loftier art, that graver and more national architecture, which now, after long peace misused, calls for a new birth, a grander renaissance." — *From an article on "Architecture and Peace."*

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

The War Office Building Committee.

To the Editor of *The Builder*.

Sir,—The appointment of a Committee to advise the War Office on building questions appears a frank admission that the best advice has not been available in the past. Nobody will quarrel with the decision of the War Office to seek expert aid. The urgent need for such a decision has long been apparent to those who are familiar with the execution of important building undertakings under competitive conditions.

Are not those whose business it is to be intimately acquainted with such matters as the letting of building contracts and the supervision of works in progress entitled to inquire who advised the War Office on the constitution of the Committee that has been appointed?

What are the institutions, charged with the maintenance of the status of our profession and armed with the much-vaunted Registration Act, doing towards ensuring that the specialised knowledge and qualifications of architects are utilised to the best advantage and in appropriate fields of effort?

The present instance of inadequate representation of architects on the Committee appears ludicrous when one reflects on the certain consequences of any attempt to disregard the normal functions of any specialist trade within the building industry, or of attempting to subject the activities of a Trade Union Executive to the supervision of the director of an oil company.

T. E. Heysham.

Orpington, Kent.

Future Planning Policy.

To the Editor of *The Builder*.

Sir,—Your leading article on War aims was very encouraging to those who have been thinking about future planning policy. The need for the co-ordination of policy has been realised by The 1940 Council. The Council is working closely both with older organisations interested in planning and with the newer organisations set up to examine reconstruction proposals. The Council has in view the object of securing the completion of a series of regional surveys carried out all over the country on a basis that allows for the comparison of methods and the compilation of the basis for a material scheme.

An equally important aspect of the Council's work is the securing of recognition for the need of national planning. The history of planning shows that many surveys and schemes have been produced, but many have been completely ignored. It is vital that the efforts of all the interested organisations should be related in such a comprehensive way as to impress the Government with the need for generous action when the opportunity occurs. The 1940 Council would welcome the co-operation of the other associations to this end.

J. G. Ledeboer,
Hon. Secretary, The 1940 Council.
13, Suffolk Street, S.W.1.

Miners' Welfare Architectural Staff.

To the Editor of *The Builder*.

Sir,—The Miners' Welfare Commission Architects' Office is well known to your readers, and has earned high praise as a unique example of a team of official architects producing work of a high standard. It will therefore come as a shock to you to know that Government restrictions having compelled the Commission to cease its work in the provision of pithead baths. It has been found impossible so far to persuade any Department to utilise the services of this notable team. Twenty-one members of the staff whose ages range from 25 to 33 are being released for service elsewhere as individuals—if possible in a professional capacity—but would it not have been better to use their experience of working together?

Since the war began many new units have had to be created, usually under the ægis of consulting engineers or contractors, in order to carry out extensive building works for defence, munitions, or A.R.P. The Miners' Welfare office—with its architects, engineers, quantity surveyors and administration closely organised in wide areas of the country—is quite capable of tackling any kind of building problem, from large factories to a couple of cottages or a washhouse for refugees from air-raid damage. There is no doubt that still more factories will be required and that welfare facilities should go with them; the necessity for *bombproof* shelters, moreover, is becoming clearer.

The collapse of the export coal market does not diminish the needs of the miners of the many pits still unprovided with baths, or those of the many miners' areas for further recreational facilities. If, when the temporary shortage of building materials due to A.R.P. and defence works is over, it still appears that other building work has a prior claim over miners' welfare, will it not still appear to have been shortsighted to disperse a famous architectural team, rather than by bold planning to allot to it its place in planning war-time building?

D. E. Percival, B.A., A.R.I.B.A.,
Chairman of Council, A.A.S.T.A.

INDUSTRIAL HOUSING

R.I.B.A. COMPETITION RESULT.

The Committee responsible for the above competition have now considered the 159 designs submitted in the competition and have made their award. The object of the competition was to discover suggestions for permanent housing around the basic industries which would be economical and swift and would not interfere with pressing war activity; which would provide houses designed for peace but capable of being utilised temporarily for a dense number of occupants per house; and which would give without undue cost adequate A.R.P. protection for sleepers. Many interesting designs have been submitted and great attention has been paid to the subject of shelter accommodation and protection for sleepers. Following is the award:—

For the House.

First Prize, £250, to: No. 107, Miss J. G. Ledeboer, A.R.I.B.A., and Mr. George Fairweather, A.R.I.B.A., 55, Russell-square, W.C.1.

£125 Prize to: No. 40, Mr. R. A. Horsman, A.R.I.B.A., 36, Glenhill-close, Finchley, N.3.

£25 Prizes to: No. 24, Messrs. T. Forbes, Maclennan and Partners, F./AA.R.I.B.A., 57, Melville-street, Edinburgh, 3; No. 52 (A), Messrs. L. A. Clarke, D. E. E. Gibson, J. T. Mallorie, P. J. Marshall, F. B. Reyner and L. Whitaker, AA.R.I.B.A., 189, Birmingham-road, Coventry and No. 112, Mr. Frederick Gibberd, F.R.I.B.A., 11, Clareville Court, Clareville-grove, S.W.7.

£10 Prizes to: No. 74, Mr. Rodney Thomas, A.R.I.B.A., 24, Plimsoll-road, Finsbury Park, N.4; No. 79, Mr. C. M. Bond, A.R.I.B.A., Mrs. A. Lee, A.R.I.B.A., and Mr. L. Enevoldson, Student R.I.B.A., 3, The Grove, Bexleyheath, Kent; No. 98, Mr. B. H. Dowland, Student R.I.B.A., Flat 3, West End House, Bowness-on-Windermere, Westmorland; No. 105, Mr. Cyril Sjostrom, A.R.I.B.A., 48, Tavistock-square, W.C.1; No. 111, Mr. R. G. Brocklehurst, F.R.I.B.A., Crendon-street, High Wycombe; No. 139, Messrs. A. Llewellyn Smith, A.R.I.B.A., A. B. Waters, A.R.I.B.A., and L. C. Moulin, Student R.I.B.A., 17, Bedford-square, W.C.1; and No. 151, Messrs. A. W. Soden and P. Cornu, AA.R.I.B.A., 38, Frognal Court, Finchley-road, N.W.3.

For the Estate Plan.

First Prize, £100, to: No. 135, Messrs. G. Grenfell Bains, John A. Ashworth, Stanley E. Catterall and Tom Mellor, AA.R.I.B.A., 12-18, Guildhall-street, Preston.

£50 Prize to: No. 133, Messrs. Halliday and Agate, F./A.R.I.B.A., 14, John Dalton-street, Manchester, 2.

£20 Prize to: No. 44, Mr. Ewart B. Redfern, A.R.I.B.A., 2, Carlton Villa, Grosvenor-road, Newcastle, Staffs.

£10 Prize to: No. 26, Miss Stella M. Scott, A.R.I.B.A., 27, Lynton-road, Peterborough; No. 79, Mr. C. M. Bond, A.R.I.B.A., Mrs. A. Lee, A.R.I.B.A., and Mr. L. Enevoldson, Student R.I.B.A., 3, The Grove, Bexleyheath, Kent; and No. 103, Messrs. Horace Farquharson, F.R.I.B.A., and Donald H. McMorran, A.R.I.B.A., 14, North Audley-street, W.1.

Special Prizes for Complete Set of Drawings.

£10 Prizes to: No. 13, Mr. Frank T. Winter, F.R.I.B.A., 56, Litchfield Way, N.W.11; No. 51, Mr. Edward Banks (Member of the South-Eastern Society of Architects, 25, Grove Wood Hill, Coulsdon, Surrey); and No. 88, Mr. H. F. Hoar, A.R.I.B.A., with Mr. W. R. Pertwee, F.I.L.A., 20, Embankment-gardens, Chelsea, S.W.3

Preservation of the Countryside.

The 13th annual report of the Council for the Preservation of Rural England states that the results of the Council's work throughout the year have been generally successful, though it was a great disappointment that the prospect of the appointment of a National Parks Committee endowed with Government funds had to be postponed. Much work had been devoted to the subject, with the assistance of the special grant from the Carnegie Trustees, and everything is ready for a renewal of activities in the matter when the war is over. Referring to town and country planning, the Council states that much orderly development has been made in recent years in consequence of the work of local authorities under the Town and Country Planning Act, and it is most important that this should not be wasted. The Council continues to co-operate with the local branches and other organisations, which, with the help of planning authorities, are doing everything possible to safeguard potential national park areas from all but absolutely essential encroachments. Where it has been necessary to invade such areas the Council has been consulted on behalf of the various Departments concerned.

BOOKS RECEIVED

Fire Protection and A.R.P. Year Book, 1940-41. (London: Lomax, Erskine and Co., Ltd.) Price 7s. 6d.

Acoustics—Handbook for Architects and Engineers. By Percy L. Marks. (London: Technical Press, Ltd.). 7s. 6d.

Building Societies Year Book, 1940. Edited by George E. Franey. (London: Franey and Co., Ltd.) 10s. 6d.

Modern Structural Steelwork. (London: H. Young and Co., Ltd.)

CONCRETE IN HOUSING

I—THE QUESTION OF PLANNING

By EDRIC NEEL, M.A., A.R.I.B.A.

Introduction.

To-day concrete is the material chiefly used to take the place of timber for the floors and roofs of domestic building. For the walls, however, traditional materials and skilled labour are still available. Therefore, the immediate concern of those building in war time is to know which types of floor and roof construction are practical and what effect the use of concrete floors and roofs will have upon planning and structure.

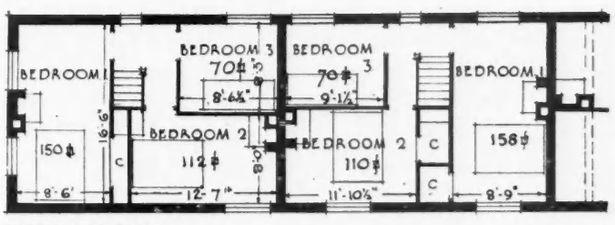
Misdirected enthusiasm has often produced concrete structures of poor design and workmanship which have discredited the material in certain quarters. Thus the object of these articles is to describe only those systems of floor, roof and wall construction which have proved satisfactory. It is hoped that this information will serve as a useful basis and reference for all those who are faced with the problems of war-time and post-war housing.

Characteristics of Concrete.

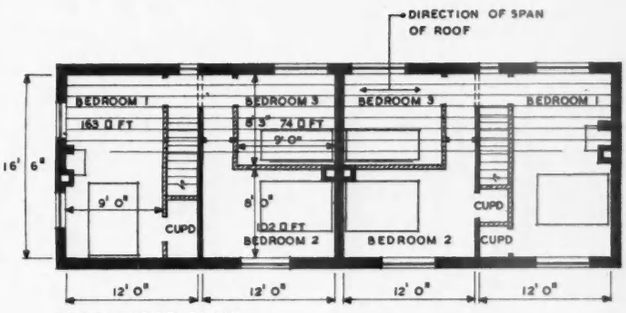
Concrete can be either cast *in situ* or precast. In larger schemes, of course, precast concrete units can be manufactured on the site, thus eliminating transport costs. *In situ* concrete is more economical than precast concrete from the point of view of using the least material, and the continuity obtained with *in situ* concrete work reduces the amount of reinforcement.

There are many standardised unit types of formwork both in timber and steel, and by careful design it is possible to reduce the quantity of formwork to a minimum and to obtain the maximum of re-use. It should, however, be remembered, that with *in situ* concrete allowance must be made for any interference with any other building operations caused by formwork and propping during the time required for the concrete to set and cure.

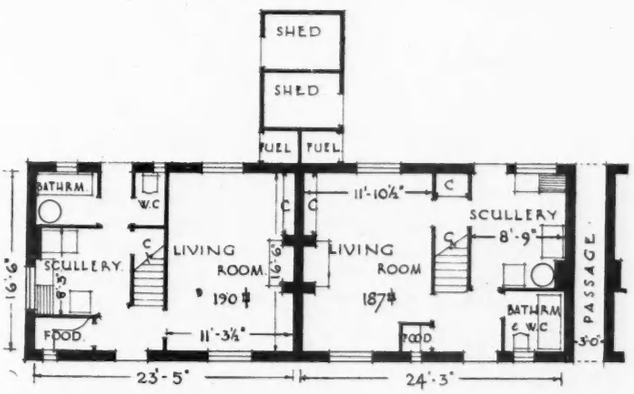
Precast concrete requires some timber or steel for moulds, but owing to advances in technique it is possible to de-mould a concrete unit very quickly and thus free the mould for re-use. Precast concrete units, however, sometimes require additional reinforcement to ensure that they can be handled and placed in position without fear of fracture. Precast concrete sections, provided that they are well manufactured and adequately reinforced, have a strength virtually equal to timber sections of the same size, but



FIRST FLOOR PLAN

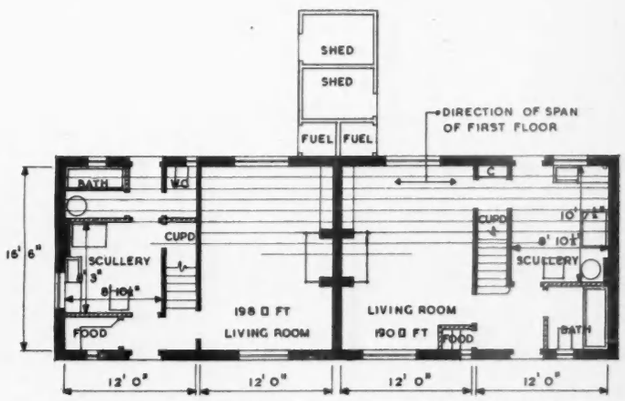


FIRST FLOOR PLAN



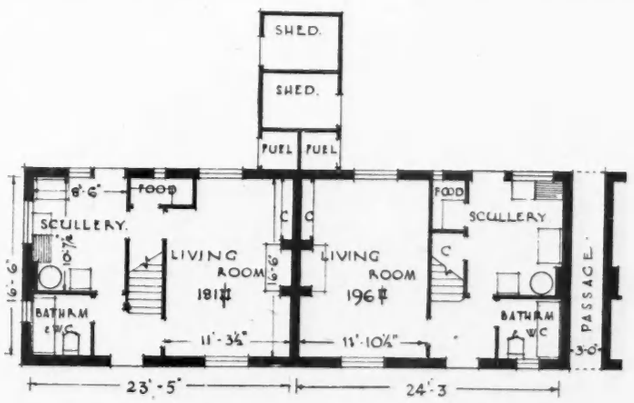
GROUND FLOOR PLAN
Ib. 773 sq. ft.

NORTHERLY ASPECT
Ic. 800 sq. ft.



GROUND FLOOR PLAN
Ib. 804 sq. ft.

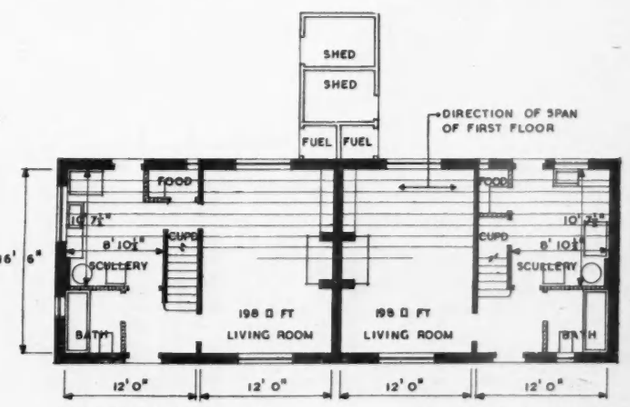
NORTHERLY ASPECT
Ic. 804 sq. ft.



GROUND FLOOR PLAN
Ia. 773 sq. ft.

SOUTHERLY ASPECT
Id. 800 sq. ft.

PLAN NO. 1—a, b, c, d, FROM M.O.H. RURAL HOUSING MANUAL.



GROUND FLOOR PLAN
Ia. 804 sq. ft.

SOUTHERLY ASPECT
Id. 804 sq. ft.

PLAN ADAPTED FOR CONCRETE CONSTRUCTION.

A through living-room type permitting siting for any aspect. Types "c" and "d" are suitable as intermediate houses. Types "a" and "c" indicate direct access between living room and scullery.

the concrete section will weigh approximately three times as much as the timber section.

Planning.

This weight factor is extremely important, since it determines the maximum length of concrete units which can be conveniently handled. Generally speaking, the maximum economical length for a precast concrete unit of the beam type is 13 ft.; therefore, spans between supporting walls should not exceed this dimension. This, then, is the first point to be borne in mind in planning.

The second point is that load-bearing walls on upper floors must coincide with those on lower floors to ensure that all loads transferred to the wall by floor and roof construction be taken directly and simply to the ground. To a lesser degree the same applies to partitions spanning in the direction of the floor construction. If this cannot be arranged, the partitions should be of lightweight construction, and the portions of the floor on which the partitions rest should be strengthened to take the added load.

In addition to ensuring that the clear spans between load-bearing walls should not exceed 13 ft., it is important that spans between load-bearing walls should be standardised throughout the house. With standardised spans, identical precast concrete floor and roof units—or, in the case of *in situ* concrete, shuttering units—can be used throughout the job. Such standardisation leads to economy in cost and speed of erection.

Having thus established that the principles governing the planning of houses using concrete floors and roofs are :—

(1) Standardisation of spans;

(2) Spans between load-bearing walls not to exceed 13 ft.;

(3) Load-bearing walls to carry up through ground and first floors;

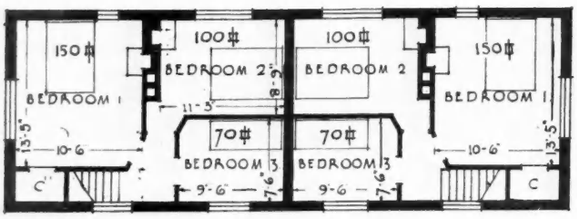
(4) Partitions to carry up through ground and first floors where possible;

let us examine whether these principles can be applied to normal housing plans without imparing convenience or economy.

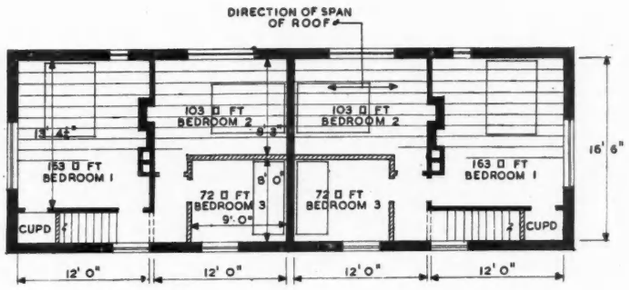
The Ministry of Health Rural Housing Plans are taken as a basis, and the plans as published in the Ministry of Health Rural Housing Manual are shown alongside the same plans revised for concrete construction. Underneath these plans is appended a list of the variations between the original and the revised plans, and it is interesting to note how minor are the alterations necessary to adhere to the principles illustrated above.

More interesting still is the fact that the revised plan, based as it is on conclusions derived from a careful study of the structural medium, is possibly more straightforward and more simple in construction than the original plan.

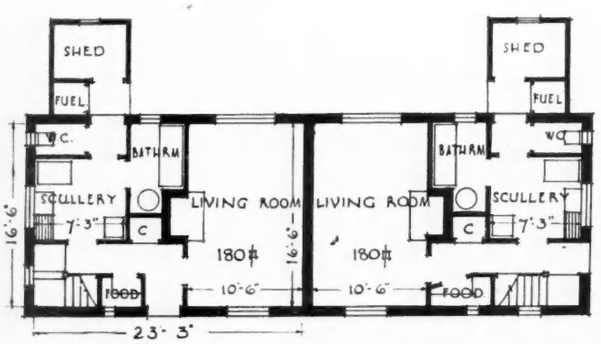
(To be continued.)



FIRST FLOOR PLAN

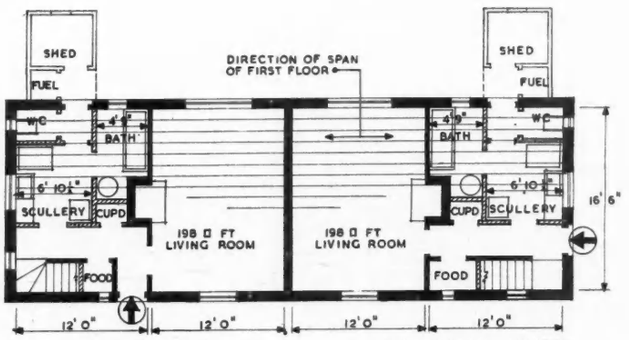


FIRST FLOOR PLAN



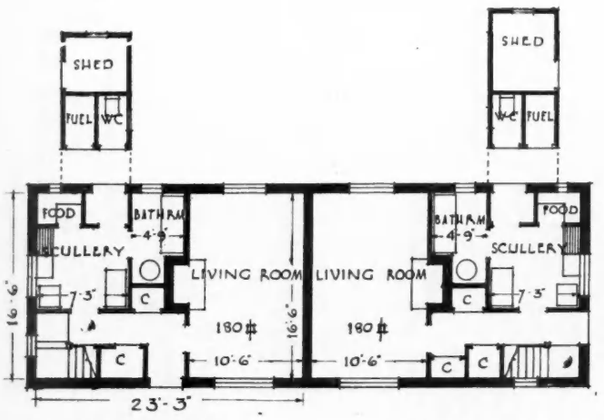
GROUND FLOOR PLAN
IIb. 767 sq. ft.

NORTHERLY ASPECT
IIc. 767 sq. ft.



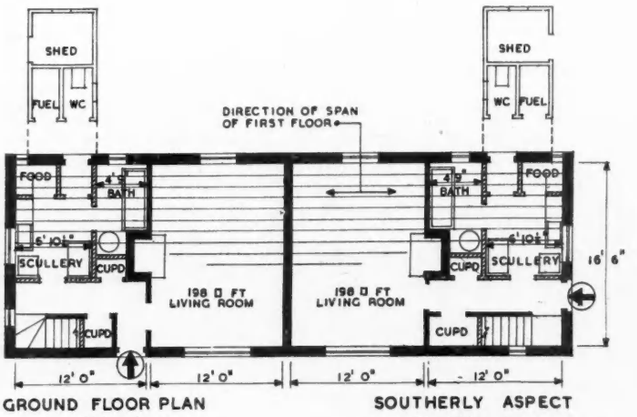
GROUND FLOOR PLAN
IIb. 804 sq. ft.

NORTHERLY ASPECT
IIc. 804 sq. ft.



GROUND FLOOR PLAN
IIa. 767 sq. ft.

SOUTHERLY ASPECT
IId. 767 sq. ft.



GROUND FLOOR PLAN
IIa. 804 sq. ft.

SOUTHERLY ASPECT
IId. 804 sq. ft.

PLAN NO. II—a, b, c, d, FROM M.O.H. RURAL HOUSING MANUAL.

PLAN ADAPTED FOR CONCRETE CONSTRUCTION.

A through living-room type with central chimney stack. Plans "c" and "d" have entrance doors placed in the flank walls.

IN PARLIAMENT

Labour Supply Board.

MR. HICKS asked the Minister of Labour if he was in a position to make a statement in regard to the work of the Labour Supply Board, and the inspectors appointed thereunder who had visited Government buildings, factories, etc.; and if the inspectors had reported on any delay in the execution of contracts, and the causes they attributed thereto.

MR. ASSHETON said that he assumed that the question related particularly to building and civil engineering contracts. The Labour Supply Board advised the Minister on questions arising in this connection as in others, and had before it the points arising from visits to such works by the Department's Building Labour Inspectors who at present numbered six. It was not the function of the inspectors to discover cases of delay in the execution of contracts. They were sent to investigate cases in which there was an alleged delay due to shortage of labour and to recommend what steps should be taken to supply additional labour or, it might be, to ensure the more effective use of the existing labour or to call attention to the need for better organisation of the supply of materials. Copies of the inspector's reports were made available to all departments concerned.

Scottish Housing.

MR. R. GIBSON asked the Secretary of State for Scotland how many houses had been completed in Scotland since August 1, 1939; how many of these were subsidised; and how these had been distributed among cities, large burghs and the remaining parts of counties respectively.

MR. BROWN said that 18,520 houses were completed between August 1, 1939, and June 30, 1940, the date of the last return from local authorities. Houses built by private enterprise included in this figure comprised only those of five apartments or less. 13,505 of the total number completed were subsidised houses, and of these, 2,776 were built in the four cities, 3,219 in large burghs, and 7,510 in small burghs and county areas.

OBITUARY

J. N. Fatkin, L.R.I.B.A.

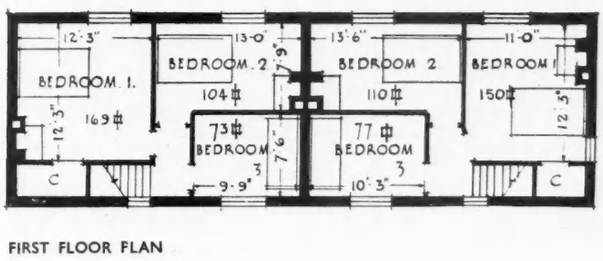
THE death has taken place at Newcastle-on-Tyne, at the age of 58, of Mr. James Newton Fatkin, L.R.I.B.A. Mr. Fatkin had designed many new buildings throughout the North-East coast and other parts of the country, including several cinemas in Northumberland and Durham. Mr. Fatkin was elected to the R.I.B.A. in 1911.

W. W. Grierson.

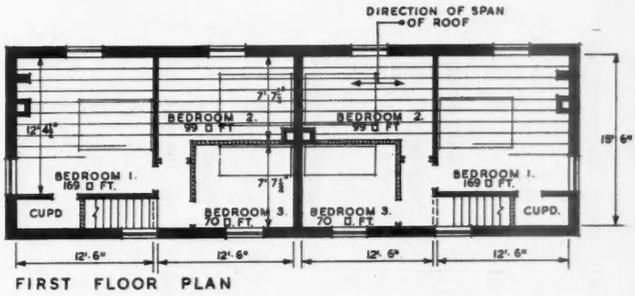
The death is announced of Mr. William Walter Grierson, late Surveyor, G.P.O.

E. H. Harvey, L.R.I.B.A.

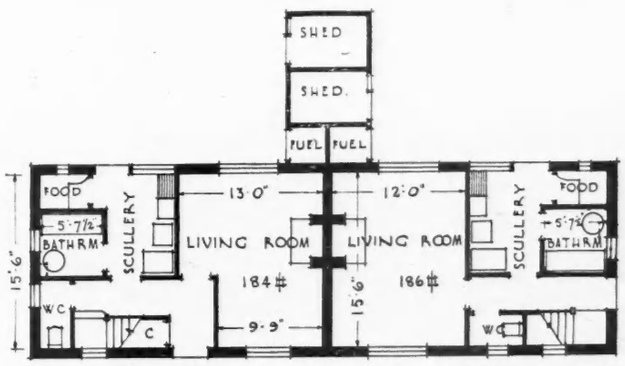
The death is reported of Mr. Edward Harry Harvey, L.R.I.B.A., of Southsea. Mr. Harvey, who executed a considerable amount of work in Southsea and Hampshire, joined the R.I.B.A. in 1932.



FIRST FLOOR PLAN

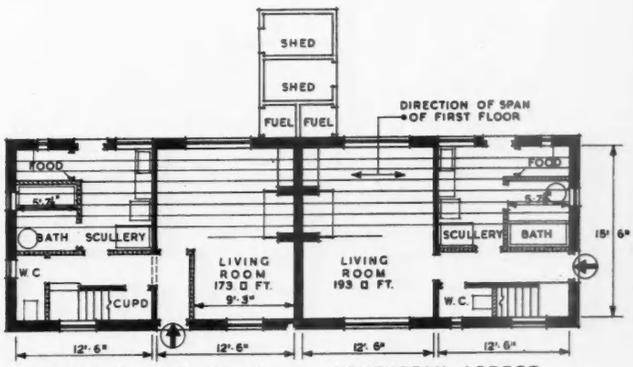


FIRST FLOOR PLAN



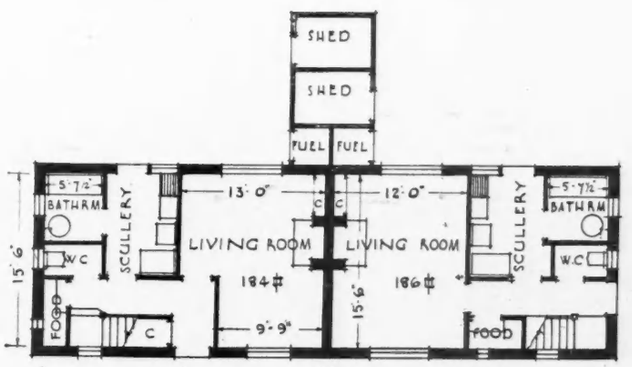
GROUND FLOOR PLAN
IIIb. 790 sq. ft.

SOUTHERLY ASPECT
IIIc. 770 sq. ft.



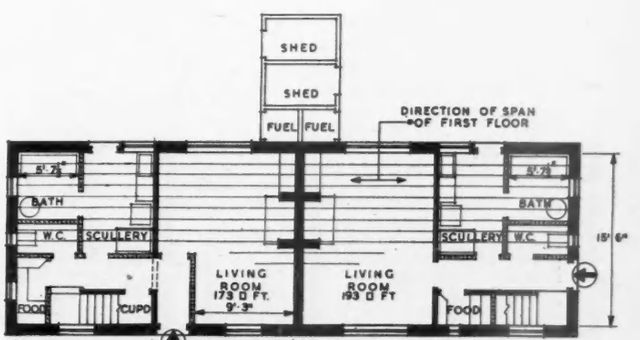
GROUND FLOOR PLAN
IIIb. 796 sq. ft.

SOUTHERLY ASPECT
IIIc. 796 sq. ft.



GROUND FLOOR PLAN
IIIa. 790 sq. ft.

NORTHERLY ASPECT
IIId. 770 sq. ft.



GROUND FLOOR PLAN
IIIa. 796 sq. ft.

NORTHERLY ASPECT
IIId. 796 sq. ft.

PLAN NO. III—a, b, c, d, FROM M.O.H. RURAL HOUSING MANUAL.

PLAN ADAPTED FOR CONCRETE CONSTRUCTION.

A through living-room type of narrower span with end stacks and front or flank entrance doors.

HUDDERSFIELD PUBLIC LIBRARY AND ART GALLERY.

MR. E. H. ASHBURNER, B.Arch., A.R.I.B.A., LIBRARY ARCHITECT.

THE new building serves to replace the existing obsolete library in Church-street; to provide for present and future readers' needs; to act as a distribution centre for local branch libraries; and to contain an art gallery of sufficient accommodation to house the existing permanent collection of pictures and such temporary collections as are arranged from time to time.

The work was commenced in January, 1937, and completed in October last, the cost (inclusive of site) being £102,500. The Chairman of the Public Library and Art Gallery Committee was Alderman Thomas Smailes, and the Librarian and Curator, Mr. Horace Goulden, F.L.A. 75,000 volumes—in addition to over 33,000 bound news, music and patent folios—are housed.

PLANNING.—Separate entrances are provided to the Children's Library and the Newspaper Room, both of which are at lower ground-floor level. The lower ground floor also contains the three stack-rooms, symmetrically placed, and with book-lifts serving to the floors above. The Lending Library forms the main feature of the upper ground floor plan, and opening off it are the Special Library and the Music Library.

On the first floor is situated the Reference Library, opening off which are the Patents Library (providing references of patents dating back to 1855), and the Local Collections Room, in which is accommodation for a collection of valuable works of local interest. Carrells, or small rooms for private study, open directly off the main stair landing. The General Reading Room provides seating for 80 readers, and the Ladies' Room for 46 readers.

The second floor is devoted to the Art Gallery, and consists of six rooms, fabric-lined, and illuminated artificially by trough reflectors and naturally by the top-side lighting method. Owing to conditions arising through the present state of war, the Art Gallery is to remain closed for the time being.

SERVICES.—Four "Self-Stoke" coke-fired boilers provide the general heating, with an auxiliary hot-water supply boiler for domestic purposes. Heating of all rooms is by the low-pressure and temperature accelerated hot-water panel system, the panels being arranged in the ceilings of all rooms, adjacent to the windows. As to ventilation, two separate systems of balanced fresh-air inlet and extract are provided, one for the library and one for the art gallery. All ducts are concealed and discharge through grilles hidden in the tops of the book shelving.

Particular attention has been paid to the layout and switching of light points, and special louvred four-point box fittings have been designed for the main reading rooms. An emergency system of lighting is provided in case of a failure in the main current supply. A light intensity of 12 foot candles has been provided in all main reading rooms save where desk lights are situated, where only five foot candles are provided for general lighting.

A vacuum cleaning plant is housed in the basement and serves all floors. Opening casements serve for the cleaning of all external window surfaces. A simple travelling runway spans the central area carrying a cradle, from which all parts of the glazed-brick area may be reached.

FLOOR FINISHES.—Main reading rooms and staff rooms, ¼-in. thick cork carpet in varying colours. Art galleries and central area of lending library—¼-in. cork tiles set in mastic; children's and news rooms—wood blocks; stack rooms—grano.

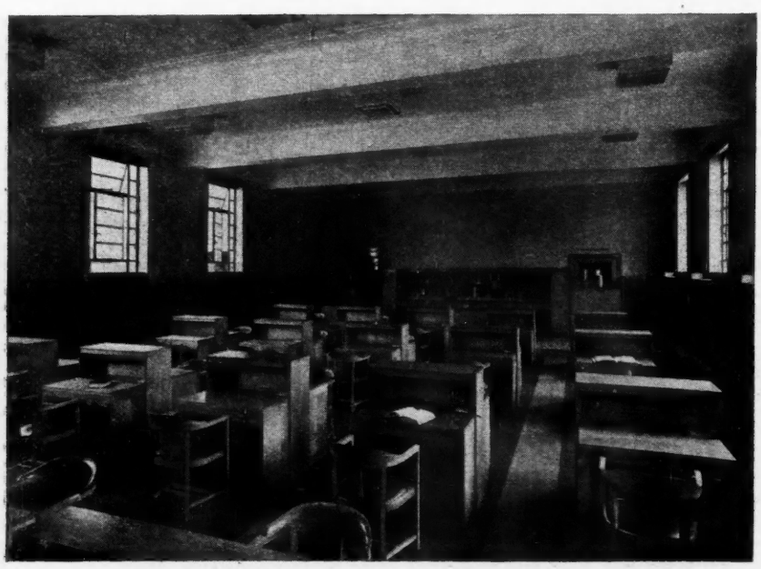
CONSTRUCTION.—Steel-framed, with rolled-steel beams and stanchions cased in concrete, with minimum cover of 2 in. The building is faced externally with the local Crosland Hill stone, 4½ in. and 9 in. on bed. Steps to main entrance are in Elland Edge stone. Flats and sloping roofs have three-coat asphalt laid on wire mesh. Staff and stack rooms are faced with sand-lime bricks in lieu of plaster.

Fronting Ramsden-street, between the three-light windows at ground- and first-floor levels, are low-relief sculptured panels symbolising various art and cultural activities. Flanking the main entrance steps are two sculptured figures symbolising the Spirits of Inspiration in Art and Literature. The sculpture is the work of Mr. James Woodford, A.R.A.

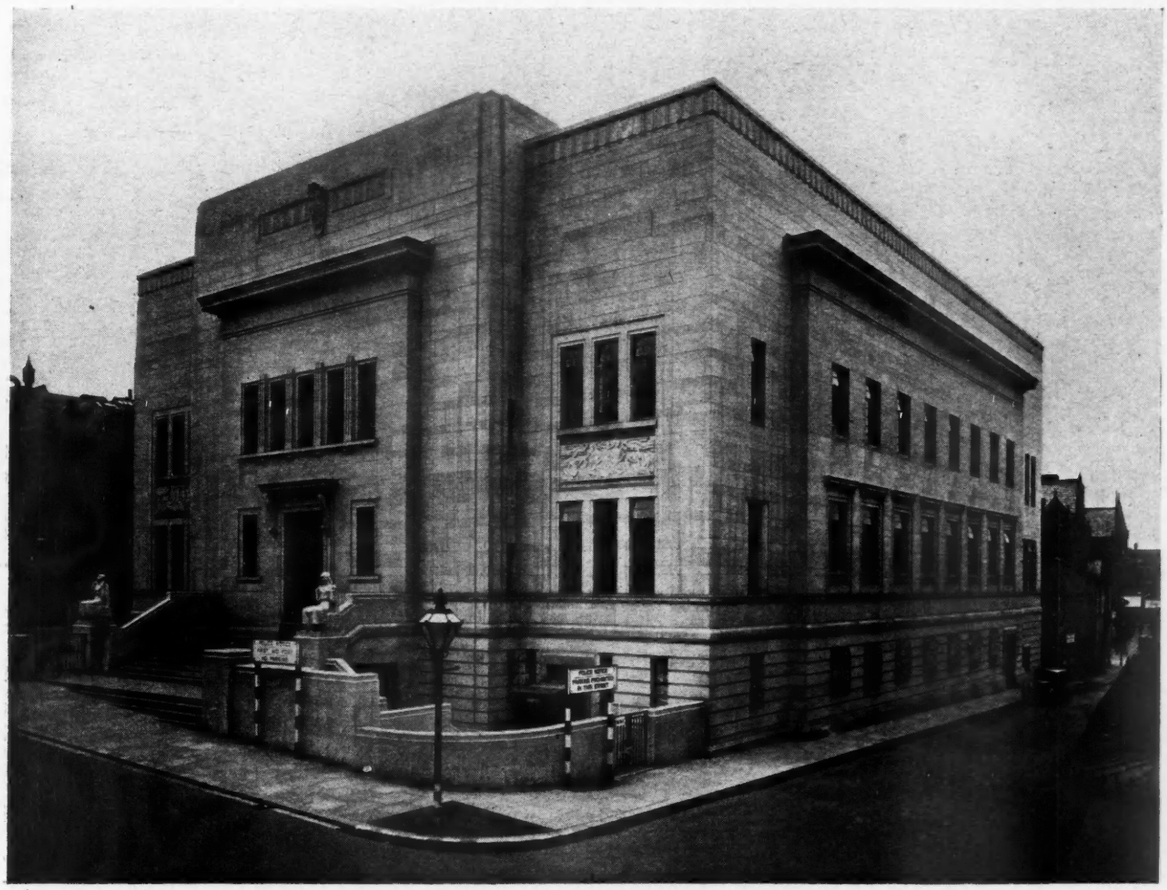
INTERNALLY.—The entrance hall is lined with San Steffano marble, the paving being a chequer design of Bianco del Mare and Swedish green. The committee room is lined with French walnut, relieved by horizontal ebony strips, and the gallery landing walls are of Gaboon with walnut strips. Wood fittings generally are of light oak, but those for the news-room are in light Honduras mahogany. In the children's library, a series of mural panels, the work of Mr. Napier, of the Huddersfield College of Art, decorate the inner wall. These panels are illustrative of local folk-lore stories, and form a pleasing touch of colour above the book-shelving.

The consultant heating engineers were Messrs. J. Roger Preston & Partners. The general contractors (who also supplied and worked all the stone) were Messrs. J. Wimpenny & Co., Spurn Point, Linthwaite, Huddersfield.

Sub-contractors engaged were: Structural steelwork, Octavius Atkinson & Sons, Ltd., Harrogate; suspended floors, Bolton & Hayes, Ltd., Bolton; plumbing and painting, A. Higginbotham & Sons, Bradford; plastering, T. B. Tunnacliffe, Huddersfield; heating and ventilating, Rosser & Russell, Ltd., Leeds; electrical wiring, Drake & Gorham, Ltd., Manchester; electrical fittings, the G.E.C., Leeds; metal windows, lantern lights and laylights, Henry Hope & Sons, Ltd., Leeds; wood fittings (shelving), R. Blackett & Son, Ltd., Darlington; wood fittings (special), W. Higgin, Ltd., Bury; marble work, J. & H. Patteson, Ltd., Manchester; Terrazzo flooring and asphalting, J. Cooke & Sons, Ltd., Huddersfield; cork flooring and lino flooring, the Asbestos and Rubber Co., Ltd., Hull; wood-block flooring, J. Wimpenny & Co., Huddersfield; passenger, goods and book lifts, Evans' Lifts, Ltd., Leicester; door furniture, James Gibbons, Ltd., Wolverhampton; sanitary fittings, the Leeds Fireclay Co., Ltd., Leeds; metal work, Davis & Brocklesby, Ltd., Manchester; railings and gates, Bayliss, Jones & Bayliss, Ltd., Wolverhampton; strong-room doors, the Ratner Safe Co., Ltd., Leeds; turnstiles, W. S. Tyler Co., Ltd., London; electric clocks, J. S. Taylor & Co., Ltd.; blinds, "Accordo" Blinds, Ltd., London; internal telephones, the Dictograph Telephones, Ltd., Leeds; and cleaning runway, Herbert Morris, Ltd., Loughborough.



THE REFERENCE LIBRARY.



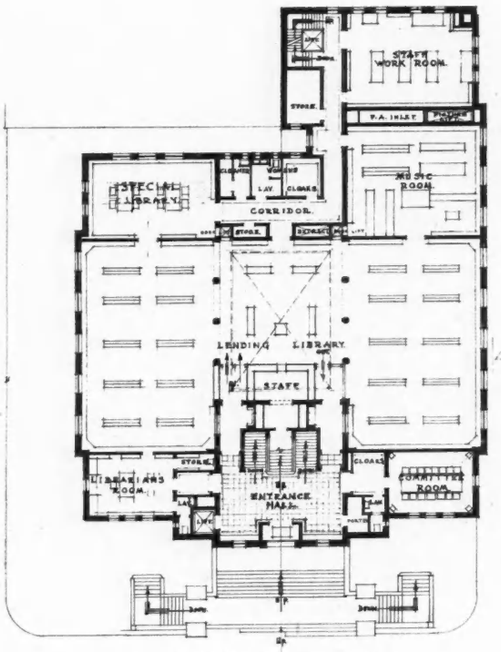
GENERAL VIEW FROM RAMSDEN STREET.

HUDDERSFIELD PUBLIC LIBRARY AND ART GALLERY.

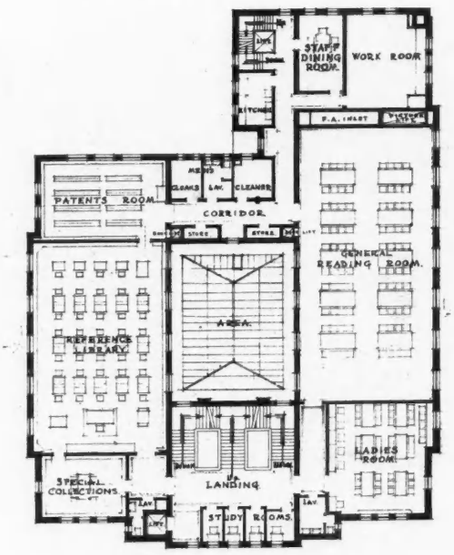
MR. E. H. ASHBURNER, B.Arch., A.R.I.B.A., LIBRARY ARCHITECT.

MR. G. H. ROWLEDGE, A.R.I.B.A., CHIEF ARCHITECTURAL ASSISTANT.

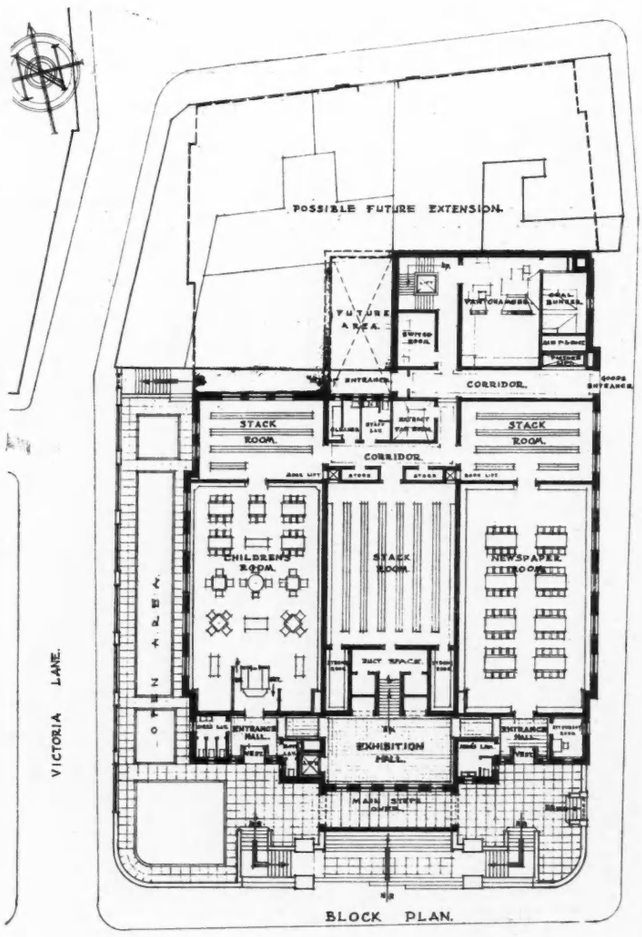
MR. JAMES WOODFORD, A.R.A. (right), at work on one of the external figures symbolising "INSPIRATION IN ART AND LITERATURE."



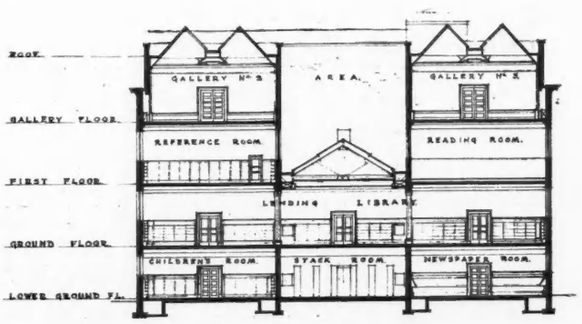
GROUND FLOOR PLAN



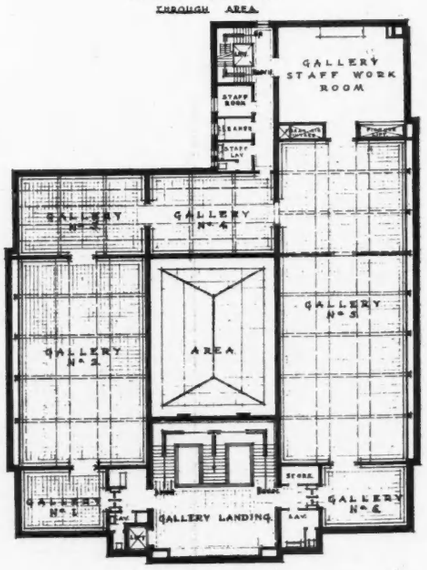
FIRST FLOOR PLAN



BLOCK PLAN.



CROSS SECTION THROUGH AREA.

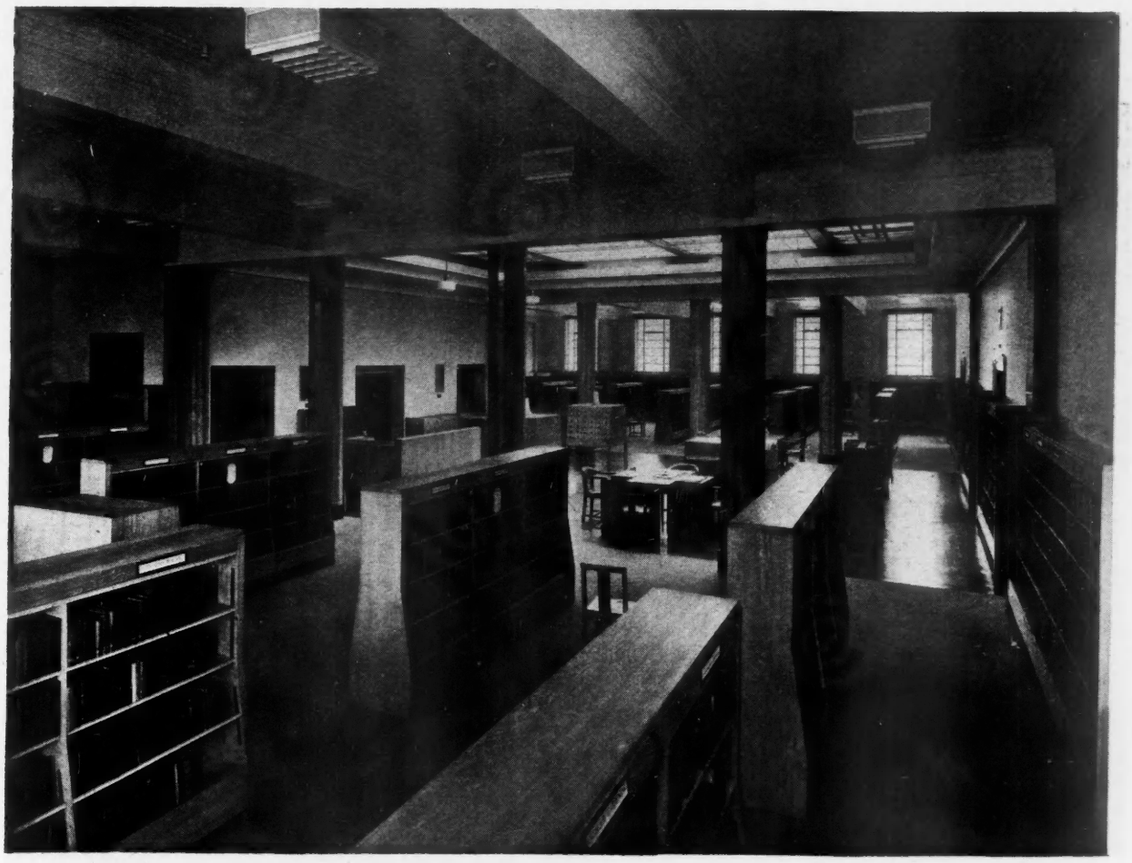


GALLERY FLOOR PLAN

SCALE OF FEET

HUDDERSFIELD PUBLIC LIBRARY AND ART GALLERY.

MR. E. H. ASHBURNER, B.Arch., A.R.I.B.A., LIBRARY ARCHITECT.

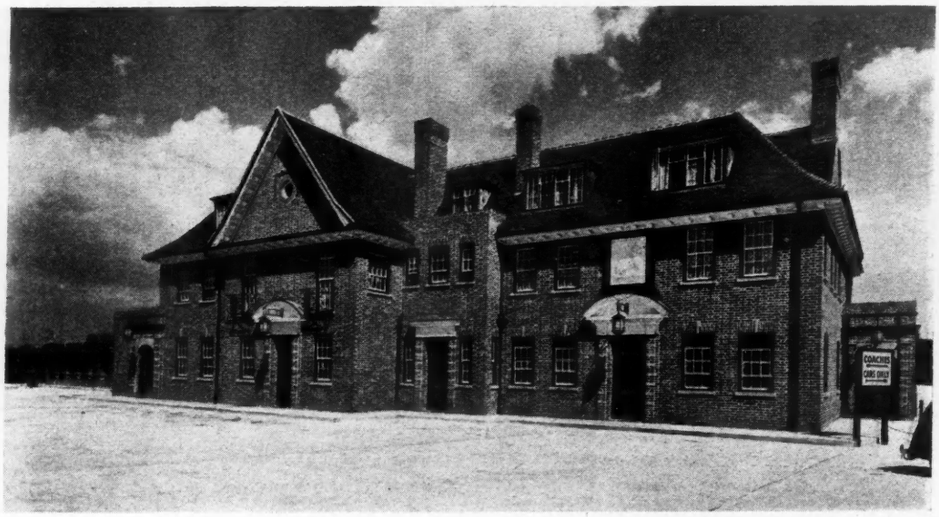


THE LENDING LIBRARY. *Below*: THE ENTRANCE HALL.

HUDDERSFIELD PUBLIC LIBRARY AND ART GALLERY.

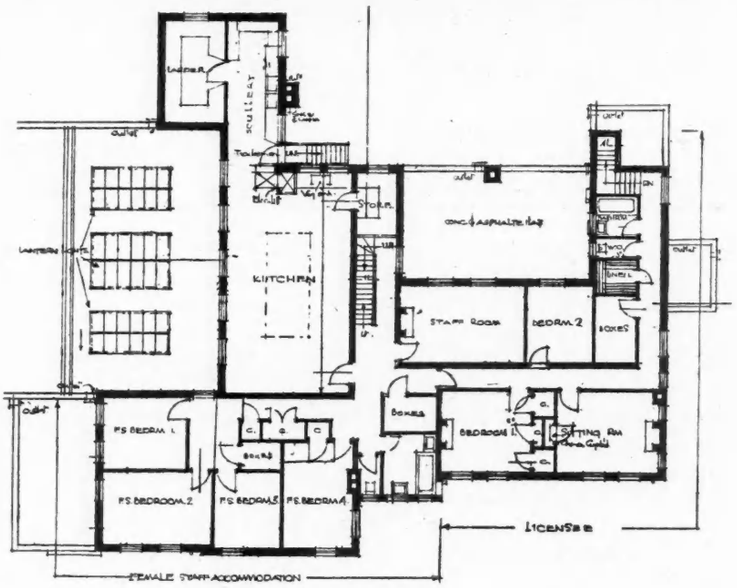
MR. E. H. ASHBURNER, B.Arch., A.R.I.B.A., LIBRARY ARCHITECT.

THE "BULL" PUBLIC HOUSE, BIRCHWOOD, KENT.

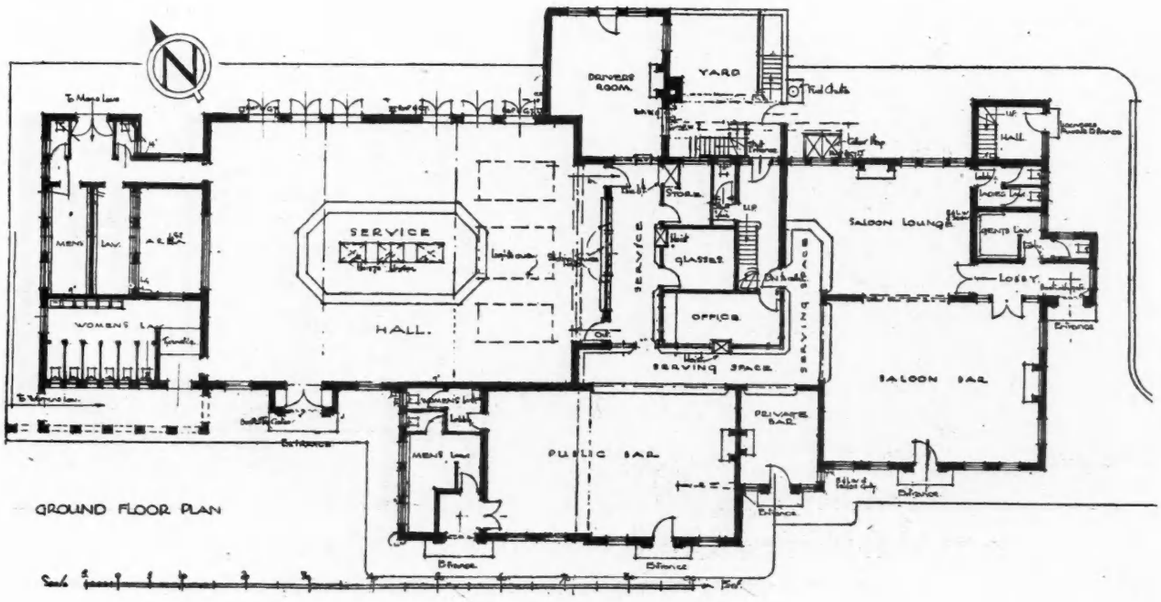


MESSRS. NOWELL PARR AND SON, ARCHITECTS.

THESE premises, owned by the Dartford Brewery Co., Ltd., were built to replace an old house. They have been designed to cope with the local trade, car trade off the road, and a considerable summer charabanc trade. The service for the charabanc trade presented a problem which was solved by providing an island counter with central cabinet with two cashiers' desks and two cellar hoists for bottled beer and a hoist for empties. Elevations are in a multi-coloured brick with tiled roof. The general contractors were Messrs. Haymills (Contractors), Ltd., and sub-contractors were: bricks, Henry C. Parker; heating and hot water, James Slater & Co., Ltd.; electrical work, Leather & Strong; ironmongery, Yannedis & Co., Ltd.; wall tiling, Carter & Co.; barfitting, Simmonds (Barfitters), Ltd.; beer hoists and lifts, Aldous & Campbell, Ltd.; panelling, A. Vigers & Sons; and lino wall tiling, Catesbys, Ltd.

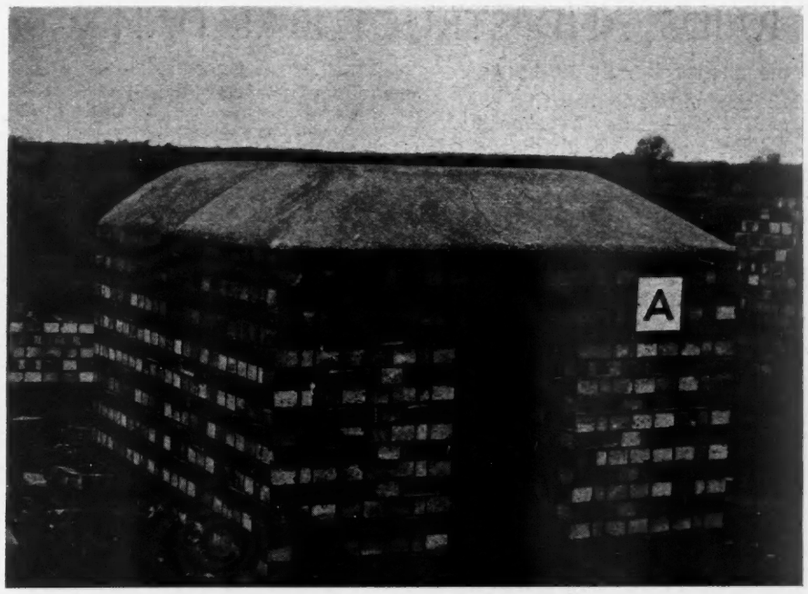


FIRST-FLOOR PLAN.



GROUND FLOOR PLAN

A CORBELLED ALL-BRICK SHELTER

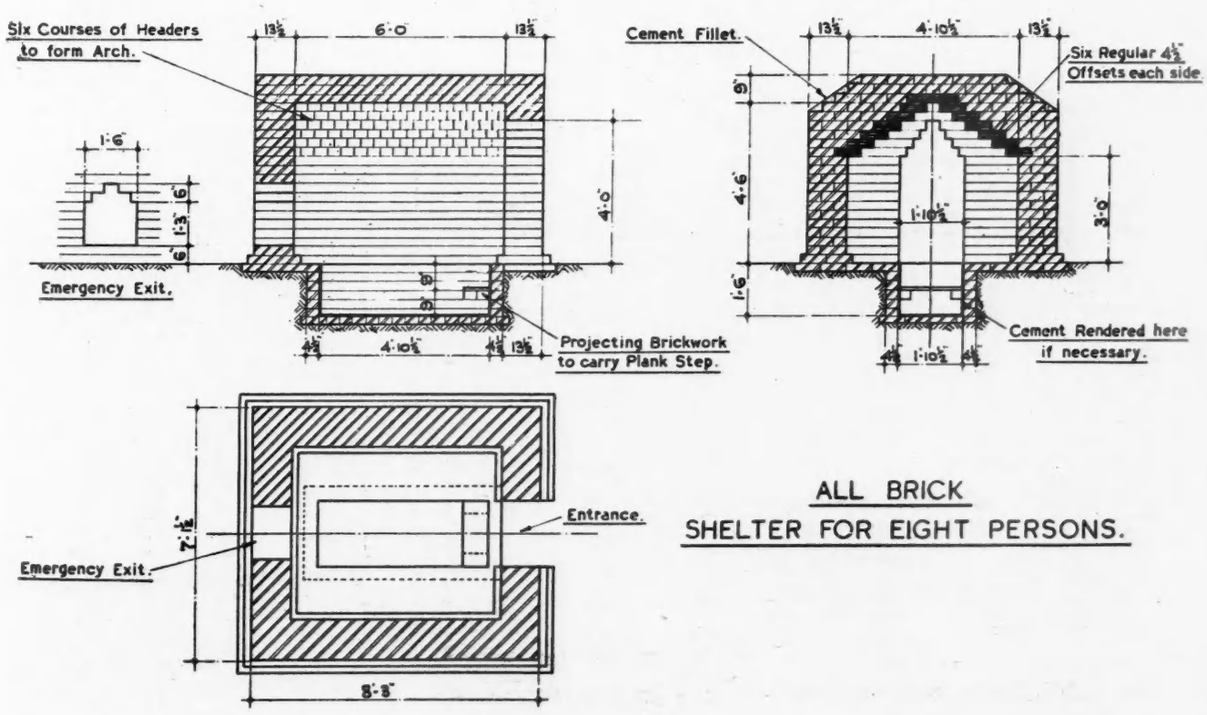


THE EXTERIOR OF THE SHELTER. THE PHOTOGRAPH WAS TAKEN AFTER A FALLING-LOAD TEST.

The all-brick shelter illustrated on this page has been designed and erected by the London Brick Co., Ltd. The type shown here accommodates eight persons. It is constructed entirely of brick, without steel or timber and with no false work. The roof, however, is covered with 1½ in. rendering for waterproofing.

The essential feature of the construction is the corbelled roof on which a falling-load test has been carried out. A masonry block, weighing 18 cwt., was dropped on to the roof with a clear fall of 15 ft. There was no loosening of the brickwork and no damage resulted from the impact. The corbelling can be carried out without the use of any centering, and the designers have found that the corbelled roof is effective in spans up to 6 ft. 6 in.

The shelter illustrated above required for its construction 2,830 bricks (including the trench) and 2,730 excluding the trench. The cost would be from £20 to £25. To provide a shelter accommodating six persons, this design has also been reduced to the dimensions given in Home Office Bulletin No. 14—*i.e.*, 4 ft. 6 in. by 5 ft. 0 in. In this size, the quantity of bricks required would be 2,400, including the trench, and 2,250 excluding the trench. The estimated cost of the six-person shelter is from £17 to £20. A specimen shelter of this type has been erected at the invitation of the Ministry of Home Security in Page-street, London, S.W., at the back of the new Westminster Hospital, where it may be inspected by all who are interested. The construction throughout is in "Phorpres" brick.



ALL BRICK SHELTER FOR EIGHT PERSONS.

AIR RAIDS AND STRUCTURAL DAMAGE

EFFECT ON SINGLE-STOREY BUILDINGS.

THE Ministry of Home Security (Research and Experiments Department) have issued Bulletin No. C8, giving illustrated details of "Structural Damage Caused by Recent Air Raids to Some Single-storey Buildings." Copies may be obtained free from the Chief Adviser, Research and Experiments Department, Ministry of Home Security, Forest Products Research Station, Princes Risborough.

Following is the text of the Bulletin:—

1. INTRODUCTION.—It is generally imagined that in the case of a direct hit little can be done to save a building from more or less complete destruction. This view is not supported by the evidence of recent air-raid damage. The extent of the damage naturally depends on the size of the bomb and the type of building hit. Details are given in paragraph 2 of cases where structural damage has been caused to a modern single-storey building. In addition to the cases described in paragraph 2, there have been a number of direct hits where the damage has been confined to the roof covering, the structure itself being undamaged.

2. RECENT AIR-RAID EXPERIENCE.—*Case A. Direct hit on the building shown in Fig.* 1.

The bomb penetrated the roof and exploded on the floor in the position shown, the damage being as indicated in the figure. There appear to have been three major causes which all contributed their share towards this structural collapse:—

(1) The presence of strong side walls (9-in. brickwork steel framed) fixed at the eaves to the roof steelwork.

This appears to have been the most important cause of the collapse. When the blast from the explosion hit these side walls it forced them apart, and tore the trusses away from their end connections, leaving them unsupported.

(2) Lack of continuity of the valley beam. Had adjoining lengths of the valley beam been spliced to develop the full strength of the section, then, when the $4\frac{3}{4}$-in. dia. rivets connecting the stanchion cap to the valley beams were sheared by the earth movement resulting from the explosion, the valley beam would still have been adequate to span between the adjacent undamaged stanchion and the gable wall.

(3) Lack of steel framing in the gable wall. In conjunction with (2) above the provision of steel stanchions instead of brick piers in the gable wall would, at any rate if the stanchions were not bonded into the wall, have ensured that the valley beam would hold up.

Case B. Direct hit on the roof of a building similar to Case A.

In this case the bomb detonated on contact with a roof truss and did little damage apart from stripping the sheeting and glazing over a considerable area. None of the roof steelwork collapsed in spite of the truss struck being damaged as shown in Fig. 2. This case clearly shows how even the "continuity" afforded by the stiffness of the joint *A* of the truss is sufficient to prevent collapse. In this case it is probable that the continuity of the purlins did much to hold up the damaged truss which, in any case, was only called upon to support its own weight, since the sheeting and glazing were blown off by the explosion.

Case C. Direct hit on the roof of steel-framed shed building shown in Fig. 3. [Not reproduced.]

The bomb detonated on the roof in the position shown. The damage was not serious. Sheeting was stripped, glass was broken, and some structural members were bent and nicked.

Case D. Near miss on a 500-*ft. long by* 50-*ft. wide steel-framed shed building.*

The roof of this shed was of asbestos-cement sheeting carried on steel roof trusses spanning 50 ft. between 12-in. by 6-in. R.S.J. eaves beams. These eaves beams were carried on 10-in. by 6-in. rolled-steel stanchions. The bomb exploded beside one of these stanchions, moving and tilting its concrete base to such an extent that the connection between the stanchion and the eaves beams was sheared, and the stanchion fell over on its side. As a result of this the two 20-ft. lengths of eaves beam on either side of this stanchion collapsed, together with the four roof trusses originally carried by them. It is of interest to note that the connections between these four trusses and the collapsed eaves beams were undamaged, and also that the remote ends of these eaves beams remained attached to the adjoining stanchions.

It is certain that had the eaves beams been connected together over the supporting stanchions, this collapse would have been avoided altogether. As in cases *A* and *B* above, the sheeting was completely stripped over a wide area, so that the load which the continuous eaves beam would have been called upon to carry over two bays would have been relatively small.

Case E. Near miss on shed building having sides and gable ends sheeted with corrugated iron.

Several large bombs exploded close to the gable end, and the only damage done was to strip the sheeting and buckle the sheeting rails and gable stanchions. The latter, which were 7-in. by $3\frac{1}{2}$-in. R.S.J.s spaced at 12 ft. 6 in. were bowed in away from the explosion for a maximum distance of 14 in. They were held at eaves level (20 ft. from ground level) by a horizontal wind girder, and neither this wind girder nor any of the main steelwork suffered any damage.

This case is of particular interest as showing the excellent behaviour of a fully framed shed building under blast. Had the end gable wall been of brickwork it is almost certain that it would have been destroyed, bringing down any steelwork supported by it.

Case F. Direct hit on single-storey building with filler joist and hollow-tile roof.

This building was part steel-framed and part wall bearing. The main roof steel consisted of 14-in. by $5\frac{1}{2}$-in. rolled-steel joists spanning 18 ft. between 7-in. by 4-in. rolled steel stanchions at the front of the building and a $13\frac{1}{2}$-in. brick wall at the back. The bomb penetrated the roof before exploding and completely demolished the back wall of the building, thus bringing down the back edge of the roof. At the front of the building the 7-in. by 4-in. stanchions were little damaged and continued to hold up the roof along its front edge.

3. DESIGN OF NEW BUILDINGS.

The examples of damage given in paragraph 2 show the importance of the three following points if the maximum resistance to collapse is to be obtained:—

(1) Buildings should be fully framed. That is to say, *all* load should be carried by the steel framework and not part by the framework and part by the external walls.

(2) The steel framework should be as continuous as possible. That is to say, beams and girders should be joined together over supporting stanchions and beam to stanchion, and other connections should be as rigid as possible.

(3) A "safety valve" type of construction should be adopted wherever possible, but particularly in small buildings. That is to say, if brick panel walls are required for the protection of plant and personnel, they should be of the minimum height necessary to give the required protection. Above this height the walls should be of light sheeting designed to blow out under internal blast without damaging the structural framework.

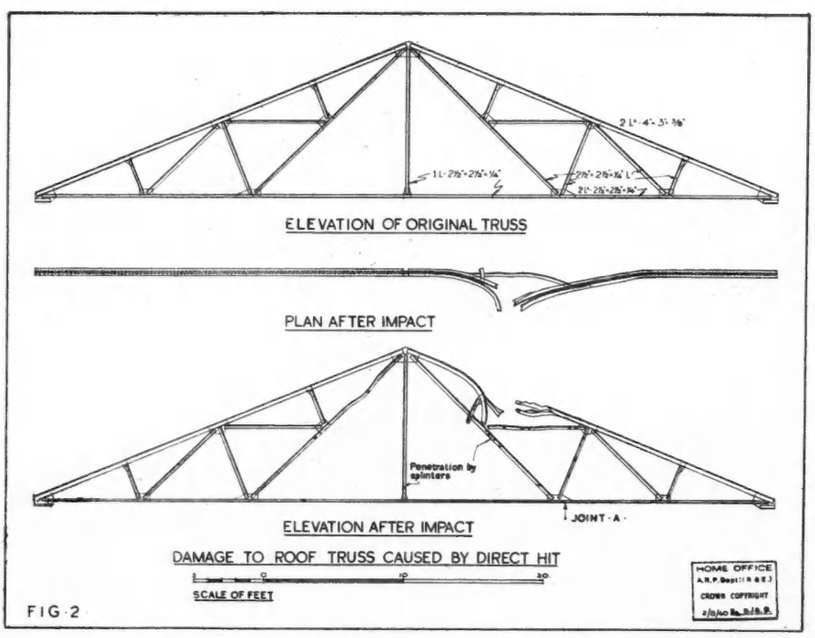


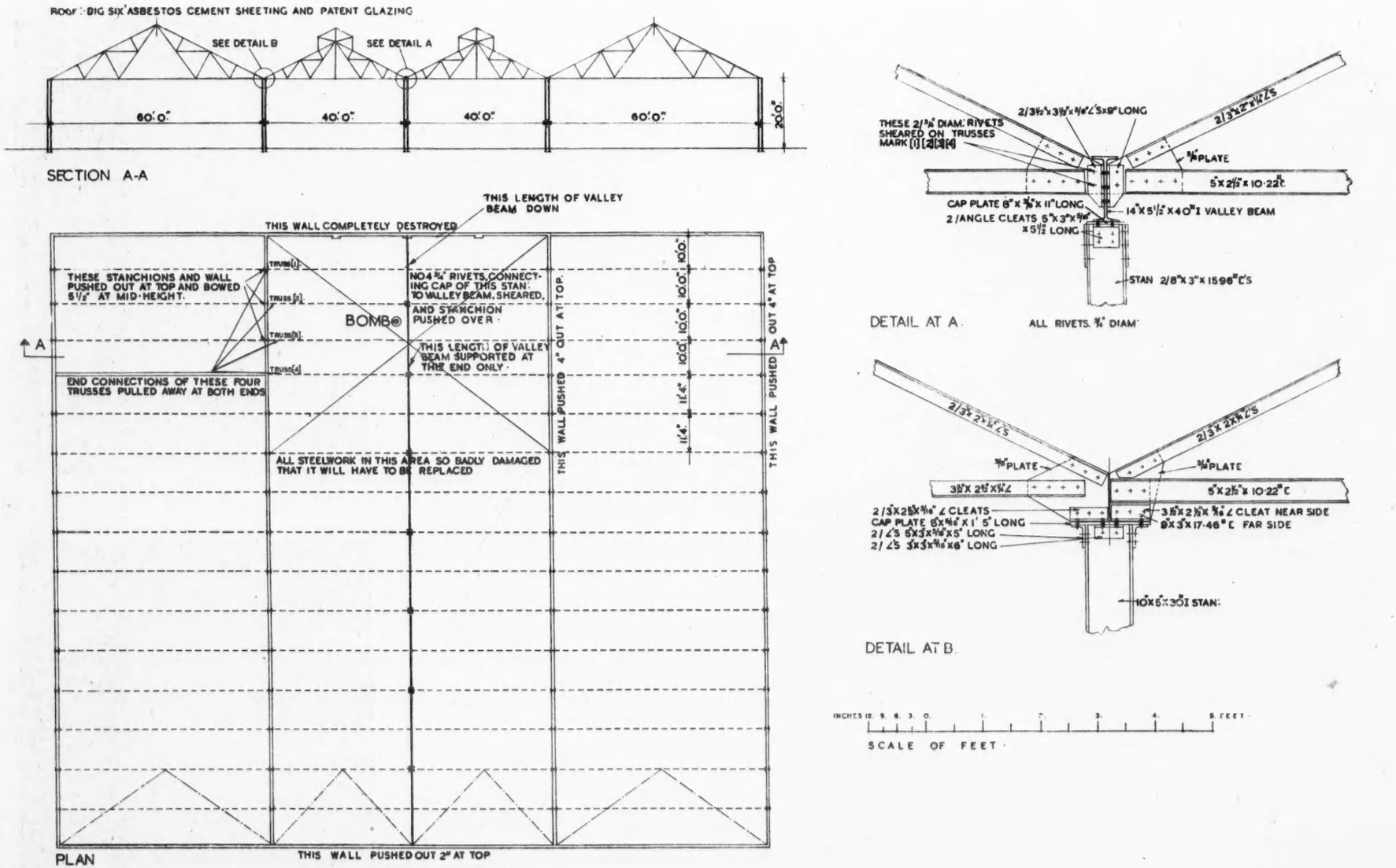
FIG. 2.—FROM MINISTRY OF HOME SECURITY BULLETIN No. C8.

BOOK REVIEW

The Story of the English House. By HUGH BRAUN, F.S.A., F.R.I.B.A. Batsford. Price 10s. 6d.

This book is far from being the first to treat of this subject, but it contains much interesting information. Its chapter headings give a good idea of its contents: "The Feudal Age"; "The Rise of the Yeoman"; "The Spacious Days"; "Sticks to Bricks"; "Architecture for All." The aim of the author is to give a concise account of the struggles, not of famous architects but of the nameless builders who strove for centuries, often with inadequate tools and materials, to provide the housing accommodation of our people. Looking at what has survived, one can only marvel at their ingenuity and thoroughness.

The book contains many interesting sidelights on building history. For example: "In the fifteenth century a law was passed to prevent citizens of London keeping pigs in their houses." "The first great speculative builder was a man called Barebones, son of the famous Praise God Barebones, who apparently preferred to call himself Barbon, one of his best-known examples being Bedford-row." The illustrations are excellent.


ROOF: BIG SIX ASBESTOS CEMENT SHEETING AND PATENT GLAZING
SEE DETAIL B
SEE DETAIL A
60'0"
40'0"
40'0"
60'0"
20'0"
SECTION A-A
THIS LENGTH OF VALLEY BEAM DOWN
THIS WALL COMPLETELY DESTROYED
THESE STANCHIONS AND WALL PUSHED OUT AT TOP AND BOWED 5½" AT MID-HEIGHT.
TRUSS (1)
TRUSS (2)
TRUSS (3)
TRUSS (4)
BOMB
NO 4 ¾" RIVETS CONNECTING CAP OF THIS STAN: TO VALLEY BEAM, SHEARED, AND STANCHION PUSHED OVER.
THIS LENGTH OF VALLEY BEAM SUPPORTED AT THIS END ONLY.
A
A
END CONNECTIONS OF THESE FOUR TRUSSES PULLED AWAY AT BOTH ENDS
ALL STEELWORK IN THIS AREA SO BADLY DAMAGED THAT IT WILL HAVE TO BE REPLACED
THIS WALL PUSHED 4" OUT AT TOP.
THIS WALL PUSHED OUT 4" AT TOP
10'0"
10'0"
10'0"
10'0"
11'4"
11'4"
PLAN
THIS WALL PUSHED OUT 2" AT TOP
THESE 2/¾" DIAM: RIVETS SHEARED ON TRUSSES MARK (1) (2) (3) (4)
2/3½"x3½"x½"∠'s x 8" LONG
2/3"x2"x½"∠'s
⅜" PLATE
5"x2½"x10·22" C
CAP PLATE 8"x⅜"x11" LONG
2/ANGLE CLEATS 5"x3"x⅜" x5½" LONG
14"x5½"x40" I VALLEY BEAM
STAN 2/8"x3"x15·96" C's
DETAIL AT A.
ALL RIVETS ¾" DIAM.
2/3"x2½"x½"∠'s
2/3"x2"x½"∠'s
⅜" PLATE
⅜" PLATE
3½"x2½"x½"∠
5"x2½"x10·22" C
2/3"x2½"x⅜"∠ CLEATS
CAP PLATE 8"x½"x1'5" LONG
2/∠'s 5"x3"x½"x5" LONG
2/∠'s 3"x3"x½"x6" LONG
3½"x2½"x⅜"∠ CLEAT NEAR SIDE
9"x3"x17·46" C FAR SIDE
10"x5"x30 I STAN.
DETAIL AT B.
INCHES 12. 9. 6. 3. 0. 1. 2. 3. 4. 5. FEET.
SCALE OF FEET.
FEET 0. 10. 20. 30. 40. 50. 60. 70. 80. 90. 100 FEET.
SCALE OF FEET.

DAMAGE TO STEEL FRAMED SHED BUILDING CAUSED BY DIRECT HIT.

FIG. 1.

HOME OFFICE A.R.P. Dept. (P. & E.)

FIG. 1.—FROM MINISTRY OF HOME SECURITY BULLETIN No. C8. (See page 238.)

THE "GRAVESEND" DOMESTIC SHELTER

ALTERNATIVE TO THE "ANDERSON."

THE cessation of the issue of the "Anderson" steel shelter to those persons entitled to a free issue created in Gravesend a serious difficulty (writes Mr. George E. Hill, B.A., A.M.Inst.C.E., Borough Engineer and Surveyor). There was a number of persons entitled to the free issue still awaiting shelters, and this, together with the movement of population and current events, resulted in an ever-growing list of applicants. A domestic shelter of such construction as would provide the required standard of protection, prove speedy of erection and of low cost, was therefore needed, and the subject of this article was evolved in my department to meet this need.

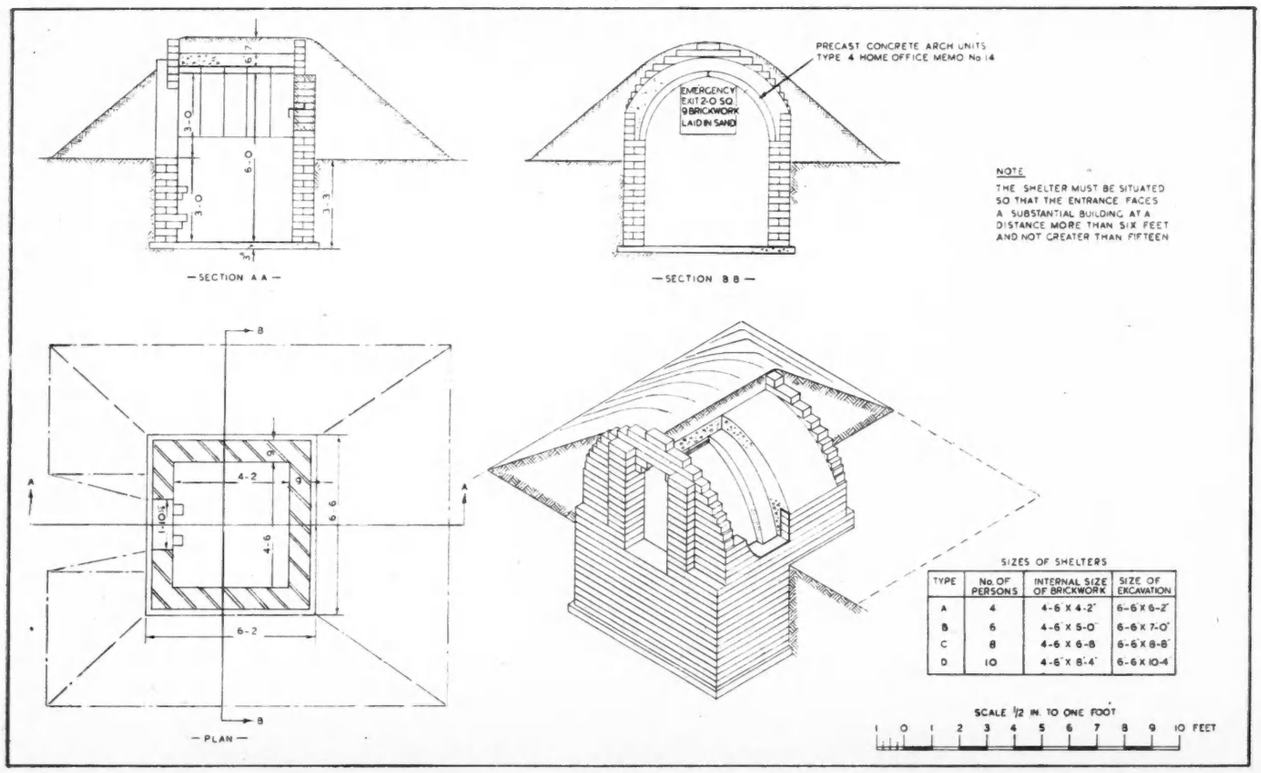
The shelter is constructed entirely of brick and unreinforced precast concrete members, making it possible to erect these shelters without drawing on stocks either of timber or steel. The "Gravesend" domestic shelter is designed on the basis of 3.75 superficial ft. floor area per person, with, however, a minimum size for the four-person size of 4 ft. 6 in. wide by 4 ft. 2 in. long. It was considered that a shelter of any smaller dimensions such as would result if the bare minimum permissible on the above standard was adopted would be undesirable, due to a feeling of restriction which the cramped space would undoubtedly convey to the occupants.

This shelter is a semi-sunk type, the excavated material being sufficient to give the required cover of 15 in. overhead and 30 in. lateral. The floor is in 3-in. *in situ* concrete. The walls up to ground level are constructed in 9-in. stock brickwork built in cement mortar. Above ground the end walls are reduced to 4½ in. thick, with the addition of a pier at either side of the entrance, serving the dual purpose of stiffening the front and retaining the cover about the entrance. The head of the door opening is formed by corbelling the top three courses of brickwork.

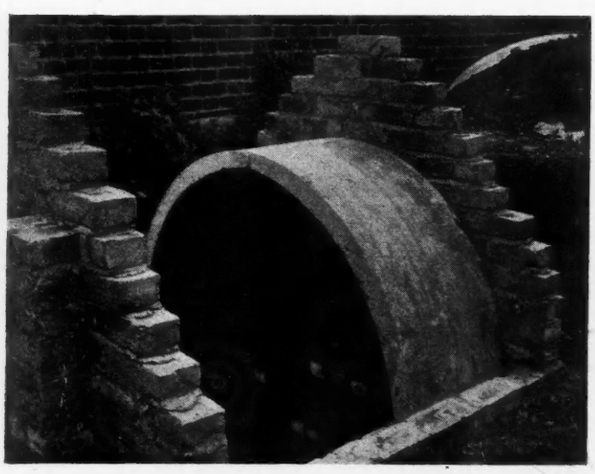
Projecting brick corbels situated internally immediately below the entrance give foothold to persons entering or leaving the shelter. An emergency exit is arranged by laying, in sand courses, the brickwork to form a 2-ft. square opening in the rear wall. The bricks are easily removed to form the exit by a small hooked bar built in as the work proceeds, but are sufficiently firm to withstand the lateral cover at the end and provide the requisite protection.

The roof is formed with precast concrete arch segments 10 in. wide, having an internal span of 4 ft. 6 in. The segments are those shown in Type 4, Home Office Memo. No. 14, and are now obtainable in large quantities from most of the well-known precast concrete factors. The segments are erected to spring from the internal face of the 9-in. wide base walls and are jointed and flushed in with cement mortar. The provision of a cement mortar cover fillet between the last sections and the end walls makes a watertight roof. The whole exterior surface of the roof is then covered with Portland cement concrete having a minimum thickness of 6 in. at the apex of the roof and taken down to finish level with the half-brick thick side guide walls of the shelter. The end walls are carried up to such a height above the concrete roof members as will satisfactorily master the *in situ* concrete roof covering and the overhead earth cover.

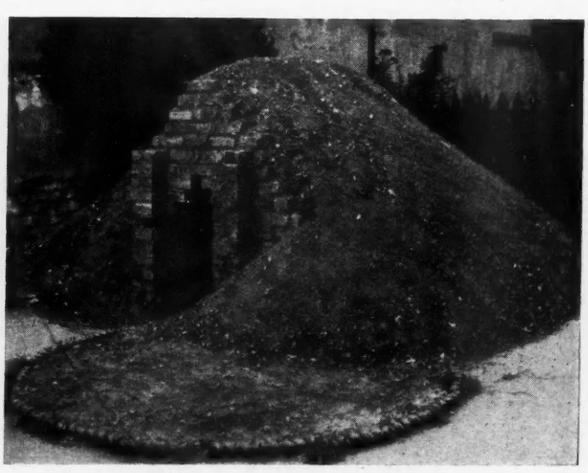
No difficulty has been experienced in ob-


PRECAST CONCRETE ARCH UNITS TYPE 4 HOME OFFICE MEMO No 14
EMERGENCY EXIT 2-0 SQ. 9 BRICKWORK LAID IN SAND
NOTE
THE SHELTER MUST BE SITUATED SO THAT THE ENTRANCE FACES A SUBSTANTIAL BUILDING AT A DISTANCE MORE THAN SIX FEET AND NOT GREATER THAN FIFTEEN
— SECTION A A —
— SECTION B B —
— PLAN —
SIZES OF SHELTERS
SCALE ½ IN. TO ONE FOOT
0 1 2 3 4 5 6 7 8 9 10 FEET

TYPE	No. OF PERSONS	INTERNAL SIZE OF BRICKWORK	SIZE OF EXCAVATION
A	4	4-6 X 4-2	6-6 X 6-2
B	6	4-6 X 5-0	6-6 X 7-0
C	8	4-6 X 6-8	6-6 X 8-8
D	10	4-6 X 8-4	6-6 X 10-4



SHOWING ROOF SECTIONS IN POSITION.



THE SHELTER AS COMPLETED.

taining the necessary material in sufficient deliveries adequately to serve the organisation, and as the only craft trade required in the erection of this shelter is that of bricklayer, the labour factor does not present an insurmountable problem. The whole of the erection of these shelters, of which about 450 are required, is being carried out by direct labour under departmental control, and the average material and labour costs of the first fifty erected—these being unit costed—are as follows :

LABOUR.

	Number employed.	Time in man hours.	Hourly wage.	£	s.	d.
Excavating hole and concreting floor—						
Excavator ..	2	16	1/2.16	0	18	9
Bricklaying.						
Bricklayers ..		18	1/8½	1	10	9
Fixing Roof Units.						
Erector and mate	2	2	1/6 and 1/2.16		2	8
Concreting over roof members.						
Labourers ..	2	2	1/6 and 1/2.16	0	2	8
Covering shelter.						
Excavators ..	2	2	1/2.16	0	2	4
				2	17	2

MATERIALS

	£	s.	d.
1,000 bricks—46/- per 1,000	2	6	0
1¼ yds. sand—5/10 cub. yd.	0	7	4
1¼ yds. ballast—7/- cub. yd.	0	9	4
10 cwt. cement—49/- ton	1	4	7
10 roof units—2/10 each	1	8	4
Total (for labour and materials)	£8	12	9

This price is exclusive of insurance, allowance for tools and plant, supervision, transport and depot charges, which are a constant factor depending upon the number of shelters erected. The prices quoted for the materials set out above include for depositing the appropriate amount of the building material at each place at which a shelter is to be erected, thereby saving the cost of double handling from the depots.

The organisation which is carrying out the construction comprises 30 bricklayers and 32 labourers, with supervision by a foreman. The borough has been divided into areas for the purposes of the work, and a temporary office and depot established in each area. The photographs and plan reproduced will give some indication of the detail construction and processes of erection of the shelter, and it is hoped to issue a further report at a later date on investigations which are now being carried out in connection with the erection of this type of shelter in ground which is subject to flooding.

The shelters are being well received by the public, who appreciate the warmth of the brick walls and the cleanliness of the concrete floor. The design and costs have been submitted to the Ministry of Home Security and the Regional Authorities, and its erection in the borough has received their approval. The precast concrete roofing sections shown in the illustration are the manufacture of The Atlas Stone Co., Ltd., Stone Court Works, Greenhithe, Kent.

Berkeley-square Railings to go.

BERKELEY-SQUARE is to surrender the railings of its gardens to swell the supply of material for armaments on condition that the Westminster City Council will maintain the gardens as an open space. A recommendation is made to the Council that, subject to submission of an estimate by the Finance Committee, such of the ironwork included in the City Engineer's list, consisting of bollards, tree grids and guards, railings and hurdles at public gardens, and miscellaneous scrap at depot, as is considered unnecessary for public safety, be surrendered for armament manufacture, subject to such other consents as are necessary being obtained.

THE PROTECTION OF FACTORY GLAZING

THE following bulletin (No. C.7) has been issued by the Ministry of Home Security (Research and Experiments Branch) :—

1. Several cases have occurred recently of serious delay in factory production following extensive breakage of glass by bombing. The delay has resulted chiefly from the destruction of black-out and exposure of the plant to weather, and to a less extent from flying and falling glass. In many cases the damage, apart from that to glazing, has been insignificant. It has become clear that the protection of glazing is of the greatest importance where factory production is concerned.

2. The following case is typical. A single bomb detonated on a shop at the edge of a large factory consisting of several groups of buildings. These had roofs of 30 degrees pitch, partly covered with corrugated sheet steel and partly with continuous ranges of roof glazing. Two only of the shops had roof glazing treated with hessian-bitumen, and although these two shops were from 100 ft. to 210 ft. from the explosion and had all glass fractured, no glass fell at time of explosion and black-out and weather-proofness were maintained for some days. Of the remaining unprotected shops, one at 150 ft. to 270 ft. from the explosion had all roof glass dislodged. In a second at 220 ft. to 270 ft. from the explosion all roof panes were fractured and most fell. In a third at 210 ft. to 450 ft. most of the glass fell except one range of wired glass which, though cracked, did not fall. In a fourth at 360 ft. to 540 ft. a small amount of glass fell. To summarise, in the factory as a whole at least half of the roof glass was damaged, production generally was seriously dislocated and in some shops entirely suspended for several days. Had all the glass been treated as was that in the two shops first mentioned, the delay would have been insignificant.

3. A large amount of research into the protection of factory glazing has been undertaken and is still in progress. Results so far obtained, together with the practical experience of air raiding, allow the following definite recommendations to be made :—

(a) **Permanently Obscured Roof Glazing.**—External hessian-bitumen treatment maintains temporary weather protection after the glass is fractured. If the glass is also supported by wire mesh close underneath or by metal or wood transverse supports at about 2-ft. intervals touching the glass, weather protection is permanent.

A British Standards A.R.P. Specification of hessian-bitumen treatments and of supports to roof glazing has been prepared and will shortly be issued. There are also several proprietary treatments that are satisfactory.

(b) **Wired Glass.**—Wired glass is much less likely to fall out of roof glazing when cracked than is unwired glass of equivalent thickness. It may, however, be dislodged bodily and therefore requires support underneath by large-mesh wire-netting or by transverse supports as described above.

(c) **Vertical Glazing.**—Vertical glazing in windows is more liable to damage by bombs exploding at ground level than sloping roof glazing, particularly when the latter is "shadowed" from direct blast.

(d) **Protecting Vertical Glazing.**—While in many cases it is important to prevent the flying of glass in vertical glazing (this can be effected by fixing wire mesh inside), it is more important to preserve the integrity of black-out and to protect against weather. The latter is best achieved by the use of internal lightweight screens as described in A.R.P. Memorandum No. 12, "The Protection of Windows in Commercial and Industrial Buildings." A somewhat less satisfactory alternative is the use of a suitable adhesive treatment on glass, together with curtains and blinds as obscuration. The most recent information on adhesive treatments is contained in the pamphlet, "Your Home as an Air Raid Shelter."

(e) **Blocking Window Openings.**—As an alternative to existing blacking-out of vertical glazing with paint, and in view of the shortage of materials for making window screens, the bricking-up of window openings should be considered. This removes wholly the risk of delay in production following window glass breakage and also provides good protection to plant against bomb fragments. It is realised that additional ventilation may be required in many cases.

(f) **Good Protection.**—The optimum protection for an existing factory building will be obtained by :—

(i) Bricking-up vertical window openings;

(ii) Treating obscured portions of roof glazing with hessian-bitumen together with support underneath. Alternatively, glass may be removed and other opaque, weather-resisting and non-splintering materials substituted;

(iii) Treating unobscured portions of roof glazing with controllable obscuration, constructed to be weather-proof when closed, together with support underneath in the form of ½-in. mesh wire-netting under plain glass, or in the case of wired glass, large-mesh wire-netting or transverse supports.

(g) **First-Aid Repair.**—It is very desirable to have ready a stock of materials for repairing damage to glazing. While the measures outlined above give good protection against the more distant blast effects, in the near neighbourhood of explosions (e.g., within about 100 ft. of a 250-kilo bomb) both glass and treatment are liable to be dislodged bodily. Also, some panes of roof glazing are likely to be fractured by debris thrown into the air. First-aid repair (which may also be permanent) should be rapidly undertaken, suitable materials in the case of roof glazing are tarpaulins, bituminous sheeting (which can be laid over glazing bars and fixed to them with suitable clips), asbestos-cement sheet, as well as materials more difficult to obtain, such as timber and corrugated sheet steel. The above materials may also be used for vertical glazing with the addition of translucent materials, such as cellulose-acetate sheet, reinforced with wire or fabric mesh, or textiles, oiled or waxed. Where glass is replaced, it should be of the wired type.

(h) **Asbestos-Cement Sheeting.**—It must be realised here that on roofs all types of asbestos-cement sheeting are vulnerable to blast, fragments and flying debris. This fact should be borne in mind in designing protection to the glass and in providing stocks of first-aid repair materials. The position in regard to vertical surfaces is somewhat different, asbestos-cement sheeting being much more resistant to blast than is glass in typical steel factory windows.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped addressed envelope.

War Damage to Houses.

SIR,—*What is the position of a householder whose property is demolished or damaged by enemy action?* N. W.

Reports from areas where residential property has been damaged by air raiders show that use is being made of the Housing (Emergency Powers) Act to carry out "first aid" repairs immediately. Under this Act the housing authority may do urgent repairs to make a house wind- and water-tight without any previous notice or reference to the Ministry of Health, but if more permanent repairs are to be done, further conditions have to be fulfilled and due notice given. (A useful summary of procedure is given in Housing Centre Information Sheet No. 3.) The cost of repairs is registered as a charge on the property, but there is no right of recovery until after the war. The Landlord and Tenant (War Damage) Act, 1939, clarifies the obligations of landlord and tenant in relation to property damaged by war, and here again essential information is contained in a Housing Centre Information Sheet (No. 5).

SERVICE OF NOTICES UNDER THE LONDON BUILDING ACTS AND BY-LAWS.—III

By W. T. CRESWELL, K.C., Hon.A.R.I.B.A., A.S.I., etc., assisted by NORMAN P. GREIG, B.A., Barrister-at-Law, M.R.San.I.

Service of Notices, etc., by the London County Council and Others.—(Contd.)

(*c*) Where the person to be served is a public body or a corporation, a society or other body, service is deemed to be effected if the document, of whatever nature it be, is addressed to the clerk, secretary, treasurer, or other head officer of the particular body concerned, at its principal office. If there is none, then it must be addressed to the premises to which the document relates. In every case it must be sent by post in a prepaid letter or delivered at the office or premises, as the case may be.

(*d*) Service on a builder.—Service in this case is effected by addressing the document to the builder at the address stated in the building notice which he has served on the district surveyor under Section 83 of the London Building Acts (Amendment) Act, 1938. If none, or in default thereof, the document can be addressed to the builder's office, or one of his principal offices, in the case of a large concern. Service is also effected if a copy of the document is affixed on some conspicuous part of the premises to which it relates.

(*e*) In any case not covered by the above, service is effected by sending by post a prepaid letter addressed to the person to be served, or delivered to him at his usual or last known residence or place of business in the United Kingdom.

The following further considerations relate to the service of notices generally :—

(*a*) A document may be addressed "the owner" or "the occupier" of named premises, no further name or description being necessary. Then, the document is deemed to be duly served if sent in a prepaid letter to the usual or last-known residence or place of business of the person to be served, or, if addressed as above, delivered either to some person on the premises, or, if none can be found to whom it can be delivered, affixed to some conspicuous part of the premises.

(*b*) Service of a partnership, as described in the previous article, is deemed to be service on each partner.

(*c*) To prove service by post it is only necessary to prove that it was properly addressed and was put into the post; obviously, the best proof would be the production of a receipt of registration, or a certificate of posting (as before referred to).

Dangerous or Neglected Structures.

What has been said above in regard to the service of documents by the London County Council and others must be amplified in the case of notices, etc., relating to dangerous or neglected structures, in the following ways : (*a*) Where the owner, and his usual or last-known residence are known to the Council, the Council must send a copy of each notice summons, or order by post addressed to that owner at such residence. (*b*) Where the structure is situated within the City of London, then, of course, the Common Council of the City of London must be substituted for the London County Council. [Note.—The term "structure," for the purposes of the above provision, includes any building or wall or other structure, as well as anything affixed to or projecting from any building or wall or other structure.] See Section 60 of the Act of 1939.

Ownership of Premises.

In connection with the service of notices, it should be mentioned, finally, that the London County Council, a Metropolitan Borough Council or the district surveyor concerned has power (by Section 126 of the 1939 Act) to require the occupier of any premises and any person who either directly or indirectly receives the rent of such premises, to state in writing the nature of his interest in them, and the name and address of any other person he knows as having an interest in them as freeholder, mortgagee, lessee, or otherwise.

(*Concluded.*)

BUILDING INDUSTRIES NATIONAL COUNCIL

GENERAL POSITION.

"During the quarter under review the building industries have had to face tasks of increased complexity and difficulty inherent in the changes and realignments in the war position," states the current issue of the "Building Industries Survey," published by the Building Industries National Council, 85, Gloucester-place, W.1. "Pressure on the resources of the industries rapidly increased in the latter part of June, arising in the main from the immediate need for coastal defence works following the collapse of France. The difficulties within the industry, and to the service departments concerned, arising from this position, are perhaps reflected, to some extent, in the appointment by the War Office of a Building Advisory Committee comprising a lay chairman and three members of the building professions. The further statement by Ministers, both in and outside the House of Commons, to the effect that the creation of a Ministry of Building is now being actively considered by H.M. Government, has tended increasingly to focus public opinion on the economic position of the building group of industries. This proposal, affecting, as it must, the future of the industry, is of unusual importance, and one which the industries will, no doubt, desire to regard with increasing attention. It is sincerely to be hoped that in the wider public interest H.M. Government in their deliberations on this matter will at the right and proper time be guided by the considered views of the organised and responsible bodies representative of the building group of industries.

"The utilisation of the industries remains in an unbalanced state, employment in the main being concentrated among operatives and the larger contractors, while the services of architects, surveyors, engineers and the resources of manufacturers remain in a large measure unemployed.

"The volume of civil building under construction at the outbreak of war is now virtually completed. No large measure of new work in this category has since become available.

"The present position, therefore, is that while the military needs of the country are absorbing most of the resources of the industry, there still remains a disconcerting amount of unemployment among insured building workers, together with a considerable measure of idle professional, contracting and manufacturing resources, and, so far as is known, there is no Government agency giving attention to the manner in which the resources of the industries are to be re-employed either during or after the war, as the military and associated needs are met and such resources in consequence become free. It is the problems presented by this position that are continuing to engage the attention of the Council and of the bodies representative of the industries. The scope for, and the place of, new building activity in the coming post-war period are manifestly becoming more recognised by H.M. Government as public opinion voices its increasing appreciation of the need for, and the important part such activity will play in, any measure of after-war reconstruction.

"The public is being kept informed as to the importance of the part building development and activity must inevitably take in post-war economy. The principle of progress by organised and responsible planning is thus likely to be carried from a war to a peace-time application. The interests of the industries are vitally concerned, and will remain so, with both the machinery of organisation and its objectives.

"The demand for supplies of primary building material has considerably increased under the pressure of urgent defence works. The fact that in some districts temporary shortages have been experienced must be accepted as an indication of the increasing urgency, particularly in present circumstances, for more intensive forward planning of materials requirements. It may perhaps be assumed that one of the purposes of the proposed Ministry of Building would be to ensure that the national requirements in this respect be increasingly detailed and the availability of supplies properly safeguarded. Any long-term shortage of materials is not to be expected."

LAW REPORT

RIGHT TO BRING TWO ACTIONS FOR SAME MATTER IN DIFFERENT COURTS. SEQUEL TO LABOURER'S ACCIDENT.

Court of Appeal.

Before the Master of the Rolls and Lords Justices Scott and Goddard.

Hills *v.* Co-operative Wholesale Society, Ltd.

This case, which came before the Court on the appeal of the plaintiff, Mr. Hills, from the judgment of Mr. Justice Macnaghten, in the King's Bench Division, on a preliminary point of law, raised the question whether the plaintiff, a labourer, who was employed by the defendants, the Co-operative Wholesale Society, Ltd., in works at Ponders End, Middlesex, and was injured in the course of his work, could pursue a cause of action in two different courts after the action in one of them had been satisfied.

The plaintiff received his injury in October, 1938, and commenced an action in the High Court against the defendants, claiming damages for alleged negligence. Pleadings were delivered in due course, and on February 14, 1939, the defence was amended by adding a plea of common employment. The plaintiff, finding out that this was about to be done, four days earlier commenced an action in the Edmonton County Court, claiming damages against the defendants in respect of the same injury under the Employers' Liability Act, 1880. That County Court action was settled by the plaintiff taking out of court £468 in satisfaction of his claim, which sum the defendants had paid into court with a denial of liability.

The preliminary point now raised was whether the plaintiff was in the circumstances precluded from proceeding with his action in the High Court, and Mr. Justice Macnaghten held that he was, and the plaintiff now appealed.

The Court dismissed the appeal.

The Master of the Rolls, in giving judgment, said that the only distinction between the two actions was that in the High Court one of the defendants had a defence of common employment which, if established, was a bar to the plaintiff's claim; while in the County Court action a limit to the amount of damages was laid down, but the defence of common employment was denied to the defendants. The cause of action was quite clearly the same, and in the circumstances, as the plaintiff had chosen to satisfy his claim by accepting the sum paid into court by the defendants in the County Court action, his cause of action was satisfied and he could no longer maintain the action in the High Court.

The appeal would be dismissed.

The other members of the court concurred.

Leave to enable the plaintiff to appeal to the House of Lords was refused.

Mr. J. P. Eddy, K.C., and Mr. W. B. Frampton appeared for the appellant, and Mr. C. T. Henderson for the respondent Society.

Architects' Estates.

Mr. Ninian MacWhannell, F.R.I.B.A., of Glasgow, left net estate of £2,580.

Mr. George James Miller, of Glasgow, left net estate of £1,641.

The late Mr. Francis Henry Hooper, F.R.I.B.A. (retired), of London and Penarth, left £41,267.

A.R.P. SCHEMES

LONDON.

FINSBURY.—B.C. recommend J. Lawson and Co., Ltd, for concrete path and flooring shelters in City-rd, £247; Frank Batty and Smith, Ltd., 18, Spring-st., Paddington, W.2, at £2,232 for shelter at St. Mark's Church site, Old-st.; Constable, Hart and Co., Ltd., 12 surface shelters at Finsbury-sq. at £120 each; Holland and Hannen and Cubitts, Ltd., at £633, for shelter at premises of Carter Paterson and Co., Ltd., at Dollington-st.; County of London Electric Supply Co., Ltd., for lateral mains between company's services and 46 shelters at £253 14s; Amalgamated Building Contractors, Ltd., for shelters; Smith and Hammond, Ltd., at £140 for wiring of Finsbury-sq. shelter; additional surface shelters at £1,550 and £2,990; staff shelter at Ironmonger-row baths, £100.

FRIERN BARNET. — U.D.C. approved application to Civil Defence Committee of C.C. for two shelters, each with accommodation up to 50 persons, one to be erected approximately half-way between Gresham-av. and road continuing from Bethune-av., and the other half-way between this position and Railway Embankment towards East-rd.—Application also made to Civil Defence Committee for waterproofing additional shelters up to maximum of 300.—Tenders invited for a shelter to accommodate residents of block of flats at Marlborough House, Oakleigh-rd—Approval also obtained to additional shelter for 50 persons outside Friern Hospital main gates. Work is being carried out by direct labour.

LAMBETH.—B.C. placed contracts with H. Bragg and Son, Ltd., for shelter at Arch No. 58, Goding-st.; Lansdowne Building Co. (London), Ltd., shelter at Brading-rd.; Davis and Co., public shelter, Denmark-hill.

PROVINCIAL.

ALNWICK.—Regional Commissioner considering public shelters in danger zones.

BARROWFORD.—U.D.C. to erect 10 communal shelters and one at Central council school. Plans by J. F. Smithie, S.

BRIGHOUSE.—T.C. to adapt portion of house for emergency fire brigade services.

CHARD.—R.D.C. recommend £950 for A.R.P. work in Chard Junction and Tatworth area, and £900 for Merriott village.

CHESTERFIELD.—R.D.C. propose 40 communal shelters at Hasland. Plans by J. B. Wikeley, S.

CHURCH. — U.D.C. propose shelter, Ernest-st. school.

CORNWALL. — E.C. propose to spend £30,000 on shelters for school children.

DORKING AND HORLEY.—U.D.C. to have three public shelters to cost not more than £500 at Horley.

DURHAM.—C.C. to build cleansing station at £450.

HAVANT AND WATERLOO. — U.D.C. decided to erect shelter near Emsworth Station and one in Stakes Hill-rd., Waterloo, to accommodate children.

HETTON.—U.D.C. to carry out scheme to drain shelters. C. E. Butterworth, S.

HINDLEY.—Heaton and Dennis, 750, Ormskirk-rd., Wigan; W. J. Bickerstaff and Son, Wallgate, Wigan; J. W. Liptrot, Bell Lane, Orrell, and Nixon and Boardman, Moor-rd. works, Orrell, all accepted by U.D.C. for 60 communal brick shelters. Plans by O. P. Abbot, S.

KEIGHLEY.—T.C. to erect shelters in six areas. Plans by E. G. Felgate (A.), Borough Architect.

KENILWORTH.—U.D.C. propose brick communal shelters. Plans by G. A. T. Edmundson, E. and S.

LANCHESTER.—R.D.C. obtained sanction to construct 14 public shelters. Plans by J. R. Lupton, S.

LIVERPOOL.—Civil Defence Emergency Committee approved complete scheme for all domestic proposals submitted by City Building S. It provides for sheltering of 700,312 persons.

LUDLOW.—R.D.C. propose public and domestic shelters at Craven Arms and Cleobury Mortimer.

MANCHESTER.—City Council recommend provision of air raid precautions works at Langho Colony and works in connection with replacement of sandbag defences by brickwork.

MERIDEN. — R.D.C. propose public shelters at Baginton. Plans by H. Pickering, E. and S.

MONMOUTHSHIRE. — C.C. recommend £25,000 during next six months for domestic shelters.

MORLEY.—T.C. to erect seven 50-person public shelters. Plans by F. Turner, B.S.

MORPETH. — F. K. Perkins, B.E., prepared plans for communal shelters. Tenders to be obtained.

NEWCASTLE-UPON-TYNE.—City Council to build public shelters at Car Sheds, Byker, and in Gallowgate.—Contract for public shelter at Gaiety Theatre let to H. Kindred, Roseville, Sunniside, Whickham.—Contract for another public shelter at Wex Garage let to Tate and Holmes, Benwell Village.—First-aid rooms and lavatory accommodation to be provided at works of George Angus and Co., Ltd., Fenkle-st. Architects, Hetherington and Wilson, County-chams., Westgate-rd.—Contract for shelter at Newton Park hotel let to Bede Distributors, Ltd., 32, Carliol-st.—Public shelter to be built at premises of W. J. Ward and Co., Clayton-st. Architect, G. B. Tait, City Council Offices, Cloth Market.

NORTHUMBERLAND.—It is proposed to construct shelters at schools at Berwick and Hexham. Architect, W. W. Tasker, County Architect, Mitford-rd. School, Morpeth.

PENISTONE.—R.D.C. approved scheme of W. H. Owen, S., for mortuary accommodation for Silkstone and adjoining districts.—Council also decided to purchase 46 shelters at £2,800.

PUDSEY.—Contracts have been placed with W. J. Kendall, A. Gibbs and Sons, Wm. Waterhouse and Son, Ward and Dalton, H. Ambler and Son, Cripwell and Shaw, Stanningley, for domestic shelters for T.C. Plans by B. H. Noble, B.S. Rest of contractors from Pudsey.

RAWTENSTALL.—T.C. adopted a scheme for protective works at Loveclough C. of E.; Cowpe Council; Lumb C. of E.; Water Council schools. Plans by J. Johnson, B.E.

RHONDDA. — S. to U.D.C. submitted scheme to C.C. for 44 street shelters to accommodate 4,400 people, at £16,031. Programme of 21 shelters, at £5,816, been approved. They will accommodate 400 people at Treorchy, 450 at Tonypandy, 450 at Porth, and 300 at Ferndale.

ROTHERHAM.—R.D.C. to erect shelters on 97 sites. Plans by A. E. Lant, E. and S., Moorgate-st.

SADDLEWORTH.—U.D.C. propose 36 communal shelters, each to accommodate 48, 36 and 24 persons. Plans by B. Castle, S.

SALFORD.—E.C. to borrow £1,669 for shelters, etc., at various schools.

SEAHAM HARBOUR.—U.D.C. proposing shelters at Dawdon. Plans by J. B. Abbey, S.

SEATON VALLEY.—U.D.C. to build report centre with shelters and also new wardens' posts. Plans by T. W. Burgess, S.

SEDGEFIELD.—R.D.C considering shelters at hospital.

SOUTHAMPTON.—C.B. approved: British Overseas Airways Corporation, shelter.

STOKESLEY.—W. Thompson, Northallerton, secured contract at £566 for four public shelters at Stainton and two at Maltby for R.D.C.—R.D.C. considering adapting houses at Yarm, Nunthorpe, Marton, Ormesby, Hemlington and Ingleby Barwick as shelters

WAKEFIELD.—R.D.C. to erect communal shelters on 25 sites at New Sharlston, Sharlston, New Crofton, Crofton, Crigglestone, Painthorpe, etc. Plans by W. E. Massie, E. and S., 18, St. John's North.

WALLSEND.—J. H. James, The Boundary, secured contract for more domestic shelters.

WEARDALE. — R.D.C. received Home Office approval of C.C. scheme for cleansing station, at £450.

WHITWORTH.—U.D.C. propose six communal shelters and five shelters for scholars and public at council schools. Plans by G. V. Law, S.

WINSFORD.—U.D.C. approved plans for 122 communal shelters on 81 sites, at £50,000. Plans by P. Heaton, S.

SCOTTISH.

GLASGOW.—Plans prepared for shelters for Coopers-bldgs., Renfield-st. and St. Vincent-st. Southorn and Orr, architects, 113, St. Vincent-st., Blythswood, Glasgow, and contractors are J. Banks and Co., Ltd., Maryhill.—Corporation accepted tenders at £347 and £198 for shelters. Plans by T. Somers, architect, Office of Public Works; at Reception House, Baird-st., and at Moffat-st. reception house. Contractors are Campbell Brothers, Glasgow.—Plans for new shelters at Shieldhall-rd., Cardowan-st., Anniesland-rd., Gatehouse-av., Drumoyne-rd., Amulree-st., and Sweedsdale-av., prepared by City Architect.

MILLPORT.—Corporation to erect shelters throughout the town.

MOTHERWELL.—Plans prepared by the Burgh Architect for 74 shelters.

OFFICIAL NOTIFICATIONS

Timber Control.

The Control of Timber (No. 17) Order has been made by the Minister of Supply and came into force on August 31. The Order introduces an up-to-date schedule of the maximum prices for home-grown timber, hitherto set out in the Schedules to the No. 1 and No. 12 Orders. In general there is no change in prices, but in a few cases adjustments are made in the prices of home-grown mining timber. In particular, the differential prices for Scottish mining timber delivered to mines in England are abolished and a transport subsidy is to be paid on long railway hauls in the United Kingdom and on sea freight from Ireland and Scotland. This subsidy forms the subject of a separate Notice.

Since the new price schedules for imported timber, plywood and home-grown timber have now all been brought into force, the opportunity has been taken in the No. 17 Order to reproduce in a single form for convenience of reference the price articles of the No. 13 Order as amended by the Nos. 15, 16 and 17 Orders. A complete statement of the price provisions as they now stand will be found in the present Order.

Certain minor amendments of the Timber (Charges) (No. 1) Order have become necessary and are included in the Timber Charges (No. 2) Order, which is being made by the Treasury and was expected to come into force on August 31. The New Order provides that no charge will be payable on timber certified as recovered-unclassified or on certain speciality hardwoods, which have been imported by private firms under licence from the Control and which were not subject to the general increase on July 1 in the prices of imported timber. The new Order also provides for proportionate reductions in the charge payable on timber certified as inferior in respect of which a reduced price has been fixed by the Timber Control.

Both the No. 17 Control Order and the No. 2 Charges Order contain a slightly amended definition of timber. The new definition provides that flooring blocks and flooring strips, however prepared, are to be regarded as timber for the purposes of the Orders. Copies of the new Orders are obtainable at the published sale prices from H.M. Stationery Office.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A.) for A.R.I.B.A.; B. of E. for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E. for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A.; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

SEPTEMBER 6.

†**West Ham C.B.**—Communal shelters at Usk-st., Emily-st., Second-av., Prince Regent-la. and Manor-rd., and public shelter at Woodgrange-rd. B.E.

SEPTEMBER 9.

Banstead U.D.C.—240 pit type domestic surface shelters. S.

Cromer U.D.C.—13 communal shelters. G. E. Mitchell, S. Deposit £2 2s.

Halifax C.B.—Surface public shelters for 50 persons on 29 sites. D. T. Lloyd Jones, B.E., Crossley-st. Dep. £1 1s.

Hemsworth R.D.C.—Communal domestic shelters. S. Price, E. and S. Dep. £2 2s.

Leeds T.C. — Bricklayers', joiners' and plumbers' work at various properties. W. Jones, Director of Public Assistance, 11, South-par., Leeds, 1.

Norwich T.C.—Construction of blastproof walls. City E.

Sevenoaks R.D.C.—Conversion into ambulance party depot of The Old Oast House, and repairs and drainage works at cottage adjoining Old Oast House and cottage, Delegarde Farm, Westerham. E. and S.

Truro T.C. Pulling down rooms over River Allen and building new end wall. F. A. Barnes, City S.

SEPTEMBER 10.

***Tredegar U.D.C.**—Structural alterations to 25 bungalows. S.

Tunbridge Wells T.C.—Fire Station, Lower Gree-rd., Rusthall. Hugh P. Bishop, B.S. and Waterworks E., "Linden," Linden Park. Dep. £2 2s.

SEPTEMBER 11.

Belfast C.B.—Tallow-bound limewash to public shelters. City S. (Engineering Dept.), Room 94.

Croydon C.B.—15 public surface shelters to accommodate 1,750 persons upon 15 sites. B.E.

Norfolk C.C.—Communal domestic surface shelters at Thorpe-next-Norwich. County Architect, 25, Thorpe-rd., Norwich.

Plympton St. Mary R.D.C.—7 surface shelters at Plympton and Plymstock. E. Deposit £1 1s.

Salford T.C.—Asphalting work at Lancaster-rd. council school, Pendleton. Acting Director of Education, Education Office, Chapel-st.

Wellington (Salop) R.D.C.—348 dwelling-houses. J. Brian Cooper (A.), Coleridge-chams., 177, Corporation-st., Birmingham, 4. Dep. £2 2s.

SEPTEMBER 12.

Preston C.B.—Demolition of old municipal baths, Saul-st. B.E. and S.

SEPTEMBER 14.

Middlesbrough C.B.—Brick-built incinerator at Helmington hospital. Preston Kitchen, T.C.

SEPTEMBER 16.

Arklow U.D.C.—124 houses, including roads, sewers and water mains. J. P. Caffrey, Town S. Dep. £5 5s.

Coventry T.C.—Extensions to Central Police Station, St. Mary-st. D. E. E. Gibson, City Architect, 1a, Warwick-row. Dep. £3 3s.

Mansfield Woodhouse U.D.C. — Fire station, hose tower, and officers' houses, at Church-st. Lawrence Walker, S. Dep. £2 2s.

Tunbridge Wells T.C.—Brick and re-inforced concrete underground water storage tank. H. P. Bishop B.S., Linden Park-rd. Deposit £2 2s.

SEPTEMBER 17.

West Riding C.C.—Alterations to mortuary accommodation at Ripon Institution; bathing and lavatory accommodation at Selby Institution; extension to mortuary accommodation at Selby Institution, and replacement of eaves gutters at Keighley county hospital. Acting architect, County Hall, Wakefield.

SEPTEMBER 18.

Liverpool T.C.—Additional accommodation to X-ray dept., Alder Hey Hospital. City Architect and Director of Housing, Blackburn-cham., Dale-st., Kingsway. Deposit £2 2s.

SEPTEMBER 21.

Stroud U.D.C. — Communal domestic shelters. F. Foster Langley, E. and S.

SEPTEMBER 23.

Hemel Hempstead E.C.—Surface shelters with brick walls and concrete roofs at 11 schools for 1,540 children. B.S., Market-sq. Dep. £1 1s.

NO DATE.

* **Cheltenham T.C.**—Communal surface shelters. G. Gould Marsland, B. and Water

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

SEPTEMBER 7.

†**Newcastle-upon-Tyne T.C.** — Re-glazing section of roof over large plunge at Westgate baths, Snow-st. City Estate and Property Surveyor.

SEPTEMBER 9.

Chadderton U.D.C.—External painting and decorating of town hall, central clinic and 6 houses, and internal painting and decorating of 31 and 35, Thatch-leach. E. and S.

Hebden Royd U.D.C.—Outside painting 67 houses, Eaves estate. L. Bottomley, E. and S.

SEPTEMBER 10.

Breconshire C.C.—Alterations and additions to heating installation at Abercrave council school. H. C. W. Strickland, County Architect, Brecon.

FEDERATED EMPLOYERS'

Insurance Association Ltd.

(non-tariff)

Head Office:

8, King St., Manchester

London Office:

23, Lawrence Lane, Cheapside, London, E.C.2

All Classes of Insurance Transacted

(Except Life and Marine)

The Leading Office for

Contract Guarantee Bonds

Sunderland R.D.C.—Installation of electric light in 15 shelters. C. Emmerson, S.

Sunderland.—Painting and cleaning interior of All Saints' Church, Penshaw, also painting and papering the interior of rectory. J. A. Scorer, 12, Bell-st., Old Penshaw.

SEPTEMBER 11.

Ashby-de-la-Zouch R.D.C. — Redecoration of 58 council houses. J. P. Cook, S.

Melton Mowbray U.D.C.—Painting and decorating of 97 houses. W. H. Jarvis, E. and S., Egerton Lodge.

SEPTEMBER 12.

Haltemprice U.D.C.—External painting of 48 houses. S.

Plymouth T.C.—Installation of low-pressure hot-water boiler at Salisbury-rd. special school. J. Paton Watson, City E. and S.

SEPTEMBER 13.

Breconshire C.C.—Construction of drainage system and fitting of new w.c. pans at Hay Institution. H. C. W. Strickland, County Architect, Brecon.

SEPTEMBER 14.

Ceiriog.—External painting of 36 houses at Chirk, 12 at Glynceiriog, 4 at Dolywern, and 16 at Llanrhaiadr. R. W. Aubrey, S., Derwen, Dolywern, Wrexham. Dep. £1 1s.

Newcastle-upon-Tyne T.C. — Ventilation, heating and emergency power supply, Control Centre, Jesmond Dene House. City E.

NO DATE.

Blaenavon.—Painting and general repairs, Park-st. Methodist church. E. C. Lewis, Rossville, Gladstone-ter., Blaenavon.

MATERIALS.

SEPTEMBER 14.

Mexborough U.D.C.—Highway materials. J. Chambers, S.

ENGINEERING, IRON AND STEEL.

SEPTEMBER 9.

Isle of Wight C.C.—Reconstruction sea wall and road, Yarmouth Common. H. J. Dean, Consulting E., 53, Victoria-st., London, S.W.1. Dep. £5 5s.

Newcastle-under-Lyme T.C.—New 42-in. culvert under railway at pool dam. B.S. Dep. £1.

Padstow Council.—Sinking shaft upon Princes Common. W. Brabyn, Water Officer, 5, Mill-sq.

SEPTEMBER 10.

Near Treforest (Glam).—Demolition and removal of Rhydyfelin viaduct, near Treforest, Glam, for G.W.R. E., Cardiff (Queen-st.) Station. Dep. £2 2s.

SEPTEMBER 14.

Northern Water Board.—Mass concrete dam. C. H. K. Mealin, Clerk to Board, Parliament-sq., Ramsey, Isle of Man. Dep. £2 2s.

SEPTEMBER 19.

South African Public Works Dept.—Seven electric passenger lifts, two electric goods lifts and three electric service lifts at the new G.P.O. Building at Cape Town. Dept. of Overseas Trade, S.W.1. (Ref. T. 21012/40.)

SEPTEMBER 21.

Rhyl U.D.C.—150 tons of interlocking steel sheet piling over a distance of approximately 320 lin. yds. on foreshore. T. Lomax, E. and S. Deposit £2 2s.

ROAD, SEWERAGE AND WATER WORKS.

SEPTEMBER 10.

Belfast Harbour Commissioners.—Sewer and collateral works along Queen's-rd. W. Y. Chamberlain, E., Harbour Office.

Carmarthen T.C.—Making-up of part of Steele-ave. G. L. Ovens, B.E. and S.

Corby U.D.C.—Surface dressing with tar and/or bitumen and covering with gravel or granite chippings, approx. 40,000 sq. yds. tarmacadam carriageway and 18,000 sq. yds. tarmacadam footpath. S.

SEPTEMBER 11.

Lewes T.C.—Surfacing with tarred macadam approx. 1,400 super yds. of carriageway and footpath. C. T. Butler, B.S.

Dartford T.C.—Surface-water sewer, Kingsfield-ter. B.S.

SEPTEMBER 12.

East Elloe R.D.C.—Laying approx. 8,900 yds. 6-in. dia. spun-iron or a.c. pipe and ancillary work. G. E. Roberts, Water E. Dep. £2 2s.

Pittenweem and Anstruther Joint Water Committee.—Small sand filters, storage tank, and laying 750 yards of 2 in. main. H. C. Mackintosh, T.C. Deposit £1.

Reading C.B.—Supplying and laying on prepared concrete foundation at Station Approach approx. 5,250 super yds. of mastic asphalt surfacing (with limestone aggregate). B.S. Dep. £1 1s.

SEPTEMBER 13.

King's Lynn T.C.—Laying of new sewer on Wootton-rd. across Gaywood River. J. C. Matthew, B.E.

SEPTEMBER 14.

Grange U.D.C.—3,500 lin. yds. of class B Everite pressure or other similar pipes. E. and S.

Wakefield T.C.—Street works, Queen Elizabeth-rd. (portion of). S Hutton, City E. and S.

SEPTEMBER 23.

Mountain Ash U.D.C.—Renewal of water mains at Cefnpennar. Arthur Williams, S.

Wicklow Board of Health and Public Assistance.—Sewerage scheme at Tinahely. P. Caffrey, Board's Engineer, Aughrim. Dep. £10.

SEPTEMBER 30.

Wexford T.C.—Improvements to waterworks. Delap and Waller, consulting engineers, 16, Molesworth-st., Dublin. Dep. £10 10s.

NO DATE.

Wellingborough R.D.C. — Underground brick tank of 10,000 gallons. H. W. Sheffield, 18, Oxford-st.

Wing R.D.C.—Sewage tanks and filters, etc., at Soulbury. M. C. Clifford, C., Council Offices, Linslade, Leighton Buzzard.

Public Appointments.

SEPTEMBER 17.

***Bradford T.C.**—Temporary Architectural Assistant. City Architect.

CURRENT AND PROPOSED BUILDING WORK*

Birkenhead. — Fawcett, Preston and Co., Ltd., engineers, Bromborough Dock-rd., Rock Ferry, propose extensions. Plans by J. E. Bark, architect, 3, Stanley-st., Liverpool.

Brighouse.—T.C. to submit revised plans for extensions to fire station. Plans by H. A. Sneezum, B.E.

Burnley. — Miners' Welfare Committee, Romney House, Tufton-st., London, S.W.1, propose pit-head baths at Hapton Valley Colliery, for Hargreaves Colliery Co., Ltd. Plans by Architects' Dept.

Cheshire.—B. of E. approved scheme for improvements to Springfield-rd. elementary school, Sale, at £2,500. Plans by F. Anstead Browne (F.), County Architect, The Castle, Chester.

Coventry.—T.C. propose two bridges on roads of Canley Housing estate. E. H. Ford, M.I.C.E., City E.—T.C. is applying for sanction to borrow £571,823 for housing schemes, from plans prepared by D. E. E Gibson (A.), City Architect, for an additional 164 houses. Contract will be divided into suitable groups and tenders invited.

Finsbury.—B.C. recommend: Resurfacing of yard at Guinness-bldgs., at £108.

Friern Barnet.—U.D.C. received M.H. sanction to borrow £10,000 in respect of new offices at municipal buildings.

Hinckley. — U.D.C. approved mission church, Wykin, for Methodist Church Trustees. E. H. Crump (L.), architect, St. George's-chams.

Leigh. — Emergency hospital proposed. Plans by the Architects' Dept., H.M.O.W., Rhyl.

Manchester.—T.C. approved plans of footbridge proposed to be constructed over Fairywell Brook at Wood-rd., Baguley, and City E. to arrange for Altrincham T.C. to carry out work.—T.C. received re-sanction for new premises for Whalley Range Girls' High school, and extensions at Chorlton High School for boys.

Middlesex.—C.C. recommend: £4,000 for cleansing of water-courses in order to bring additional land under cultivation; £170 for redecorations and provision of sundry articles at Northaw-place, Potters Bar; and £198 8s. in connection with drainage of holdings Nos. 58 and 59 on Denham Estate.

Newcastle-upon-Tyne. — Nicholsons (Newcastle), Ltd., Depot-rd., to build workshop. Firm prepared plans.—C. A. Parsons and Co., Ltd., Shields-rd., Heaton, to provide lavatory accommodation at works.

Rhyl.—U.D.C. received approval to carry out sea protective works at £14,000.

* See also List of Contracts Open.

**** In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

EXPORT AND THE BUILDING INDUSTRY

PUBLIC WORKS CONTRACTING IN THE COLONIES.

We announced recently the formation of an Export Group for the Constructional Industries, to include firms engaged in constructional work, whether building, civil engineering or public works. The main idea is that the Group should confine itself to the export of services with the object of reducing the adverse balance of trade. It is believed that while British contractors have regularly competed for the larger building and civil engineering works overseas, little interest has been taken in contracts of about £100,000 in value. Such contracts, particularly in the Argentine and in Egypt, have been secured largely by German interests, which are no longer active in such markets, and it is thought therefore that the time is ripe for an endeavour to expand the British contracting industry abroad.

Contractors who propose to engage in this work may be interested to know something of the system of public works contracting in operation in the Colonies, and we are indebted to the Crown Agents for the Colonies for permission to reproduce the following note on the subject, which is based on an article that appeared some time ago in the *Crown Colonist*.

"Most of the public works required for Colonial development are carried out by the Colonial Public Works Departments, who are responsible for both design and execution. In special circumstances, where the work is of such a nature as to be beyond the resources of the Public Works Department, consulting engineers are employed to design and supervise.

"The works undertaken by the local Public Works Departments include a great variety of buildings required by the Government for administrative purposes, such as Government offices and quarters, law courts, hospitals, schools, police stations and barracks, post and telegraph offices, wireless stations, hangars for aerodromes, etc. Generally the drawings, quantities and specifications are prepared by the Public Works Department and the work is carried out either departmentally or by contract.

"Under departmental construction the Colonial Government acts as its own contractor, and the work is carried out by direct administration. This was the more usual method in the past, when local contractors were not available to undertake works of importance. To-day, in many Colonies, contractors are to be found with the necessary technical knowledge and financial resources to undertake important buildings and road contracts, and there is, in consequence, less need for departmental construction. Whether works are carried out departmentally or by contract, the materials not obtainable locally are supplied by the Crown Agents for the Colonies on indents prepared by the Public Works Department.

"For works which include the supply of a large amount of specially manufactured materials from this country, such as road and railway bridges, steel-frame buildings, powerhouses, workshops, water-tanks, hangars for aerodromes, etc., the designs are prepared in the Crown Agents' office, and they purchase, inspect and ship the necessary materials. The erection of such structures in the Colonies is usually carried out departmentally, but occasionally by contract.

"For works which are of such a magnitude as to be beyond the resources of the Public Works Department it is customary to employ a firm of consulting engineers to report upon the project and prepare the necessary plans, specifications, quantities and estimate of cost. Important schemes of water supply, drainage, harbour construction, etc., are usually dealt with by consulting engineers. When the work is eventually proceeded with—whether by contract or departmentally—a resident engineer is engaged with a staff of assistant engineers, foremen of works, etc. The resident engineer and his staff, though selected by the consulting engineers, are the servants of the Colonial Government. When the work is carried out by contract the main parties to the contract are the Crown Agents, acting for and on behalf of the Colonial Government, and the contractors. The relative position of the Colonial Government, the Crown Agents and the consulting engineers may be summarised as follows:—

"(*a*) The Colonial Government initiates the work and watches and supervises its progress, but it delegates the technical control to the consulting engineers.

"(*b*) The consulting engineers are responsible for the conception and execution of the design in accordance with the intentions of the Colonial Government; they prepare the estimates of cost and are responsible that the work is completed with due economy and expedition.

"(*c*) The Crown Agents do the commercial business connected with the work. They make the necessary arrangements for its execution, purchase stores and material when the work is carried out departmentally, engage staff and conduct corespondence between the consulting engineers and the Secretary of State or Colonial Government."

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st JUNE, 1940

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	1/9	1/4½
Aberdare	1/9	1/4½
Abergavenny	1/9	1/4½
Abingdon	1/7½	1/3
Accrington	1/9	1/4½
Aldeburgh	1/5½	1/1½
Aldershot	1/7½	1/3
Alfreton	1/9	1/4½
Alnwick	1/8½	1/3½
Altrincham	1/9	1/4½
Amble	1/8½	1/3½
Amersham	1/7½	1/3
Ammanford	1/9	1/4½
Andover	1/7	1/2¾
Ardingley	1/7	1/2¾
Arundel	1/7	1/2¾
Ascot	1/7	1/2¾
Ashby-de-la-Zouch	1/9	1/4½
Ashford (Kent)	1/7	1/2¾
Ashford (Middlesex)	1/9	1/4½
Ashington	1/8½	1/3¾
Ashtead	1/9	1/4½
Ashton-under-Lyne	1/9	1/4½
Aylesbury	1/7	1/2¾
Aylsham	1/6	1/2
Bagshot	1/7	1/3¾
Banbury	1/7	1/2¾
Barnsley	1/9	1/4½
Barnstaple	1/7	1/2¾
Barrow-in-Furness	1/9	1/4½
Barry	1/9	1/4½
Basingstoke	1/7	1/2¾
Bath	1/8½	1/3¾
Batley	1/9	1/4½
Beaconsfield	1/7½	1/3
Beccles	1/5½	1/1½
Bedford	1/8½	1/3¾
Berkhamsted	1/7	1/2¾
Berwick	1/8½	1/3½
Beverley	1/9	1/4½
Bexhill-on-Sea	1/7½	1/3
Bideford	1/7	1/2¾
Biggleswade	1/7	1/2¾
Billericay	1/6½	1/2½
Birchington	1/7	1/2¾
Birkenhead	‡§1/11	¶
Birmingham†	1/9	1/4½
Bishop Auckland	1/9	1/4½
Bishops Stortford	1/8	1/3½
Blackburn	1/9	1/4½
Blackpool	1/9	1/4½
Blyth	1/9	1/4½
Bognor Regis	1/7	1/2¾
Bolton	1/9	1/4½
Bournemouth	1/8	1/3½
Bracknell	1/7	1/2¾
Bradford	1/9	1/4½
Bradford-on-Avon	1/6	1/2
Braintree	1/7	1/2¾
Brentwood	1/8½	1/3¾
Bridgwater	1/7½	1/3
Bridlington	1/8½	1/3¾
Brighouse	1/9	1/4½
Brighton	1/8	1/3½
Bristol	1/9	1/4½
Broadstairs	1/7	1/2¾
Bromsgrove	1/8½	1/3¾
Buckley	1/9	1/4½
Bungay	1/5	1/1½
Burnham-on-Crouch	1/5½	1/1½
Burnley	1/9	1/4½
Burslem	1/9	1/4½
Burton-on-Trent	1/9	1/4½
Bury	1/9	1/4½
Bury St. Edmunds	1/6½	1/2½
Buxton	1/8½	1/3¾
Byfleet	1/7½	1/3
Cambridge	1/9	1/4½
Canterbury	1/7	1/2¾
Cardiff	1/9	1/4½
Carlisle	1/9	1/4½
Carnforth	1/9	1/4½
Castleford	1/9	1/4½
Caterham	1/9	1/4½
Chard	1/6	1/2
Chatham	1/8	1/3½
Chelmsford	1/8½	1/3¾
Cheltenham	1/8	1/3½
Chepstow	1/8½	1/3¾
Chertsey	1/8	1/3½
Chester	1/9	1/4½
Chesterfield	1/9	1/4½
Chichester	1/7	1/2¾
Chorley	1/9	1/4½
Cirencester	1/6½	1/2½
Clacton	1/7	1/2½
Cleveleys	1/9	1/4½
Clitheroe	1/9	1/4½
Cobham (Surrey)	1/8	1/3½
Colchester	1/8½	1/3¾
Colwyn Bay	1/8	1/3½
Congleton	1/8½	1/3¾
Coventry	1/9	1/4½
Cranbrook	1/7	1/2¾
Cranleigh	1/7	1/2¾
Crawley	1/7	1/2¾
Crewe	1/8½	1/3¾
Cromer	1/6	1/2
Crowborough	1/7	1/2¾
Cuckfield	1/7	1/2¾
Darlington	1/9	1/4½
Darwen	1/9	1/4½
Daventry	1/7½	1/3
Deal	1/7	1/2¾
Denbigh	1/8	1/3½
Derby	1/9	1/4½
Devizes	1/6	1/2
Dewsbury	1/9	1/4½
Didcot	1/7	1/2¾
Diss	1/5½	1/1½
Doncaster	1/9	1/4½
Dorchester	1/6½	1/2¼
Dorking	1/7½	1/3
Dover	1/7	1/2¾
Dovercourt	1/7	1/2¾
Driffield	1/7½	1/3
Droitwich	1/8½	1/3¾
Dudley	1/9	1/4½
Dunstable	1/7½	1/3
Durham City	1/9	1/4½
Eastbourne	1/8	1/3½
E. Glam. (Mon. Val.)	1/9	1/4½
East Grinstead	1/7	1/2¾
Edenbridge	1/7	1/2¾
Ely	1/6	1/2
Epping	1/9	1/4½
Exeter	1/8¾	1/3¾
Exmouth	1/7½	1/3
Fakenham	1/6	1/2
Falmouth	1/7½	1/3
Fareham	1/8	1/3½
Faversham	1/7	1/2¾
Felixstowe	1/8	1/3½
Filey	1/7½	1/3
Fleetwood	1/9	1/4½
Flint	1/9	1/4¾
Folkestone	1/7	1/2¾
Frinton-on-Sea	1/7	1/2¾
Frome	1/6	1/2
Gainsborough	1/8	1/3½
Gateshead	1/9	1/4½
Gillingham (Kent)	1/8	1/3½
Glossop	1/9	1/4½
Gloucester	1/8½	1/3¾
Godalming	1/7	1/2¾
Goole	1/9	1/4½
Gosport	1/8½	1/3¾
Grantham	1/8	1/3½
Gravesend	1/8½	1/3¾
Great Yarmouth	1/7	1/2¾
Grimsby	1/9	1/4½
Guildford	1/7	1/2¾
Guilsborough	1/7½	1/3
Halifax	1/9	1/4½
Hanley	1/9	1/4½
Harpenden	1/8	1/3½
Harrogate	1/9	1/4½
Hartlepools	1/9	1/4½
Harwich	1/7	1/2¾
Haslemere	1/7	1/2¾
Hastings	1/7	1/2¾
Hatfield	1/8½	1/3¾
Haywards Heath	1/7	1/2¾
Hednesford	1/8½	1/3¾
Hemel Hempstead	1/8	1/3½
Henley-on-Thames	1/7	1/2¾
Hereford	1/7	1/2¾
Herne Bay	1/7	1/2¾
Hertford	1/8½	1/3¾
Heysham	1/9	1/4½
Hitchin	1/8	1/3½
Hoddesdon	1/8½	1/3¾
Holt (Norfolk)	1/5½	1/1½
Horley	1/7	1/2¾
Horsham	1/7	1/2¾
Horwich	1/9	1/4½
Huddersfield	1/9	1/4½
Hull	1/9	1/4½
Hunstanton	1/6	1/2
Huntingdon	1/6½	1/2½
Ilfracombe	1/7	1/2¾
Ingatestone	1/7½	1/3
Ipswich	1/8½	1/3¾
Isle of Thanet	1/7	1/2¾
Isle of Wight	1/6½	1/2½
Keighley	1/9	1/4½
Kenilworth	1/9	1/4½
Kettering	1/9	1/4½
Kidderminster	1/8½	1/3¾
King's Lynn	1/7	1/2¾
Kirkham	1/9	1/4½
Knowle	1/8½	1/3¾
Lancaster	1/9	1/4½
Leamington	1/9	1/4½
Leatherhead	1/8	1/3½
Leeds	1/9	1/4½
Leicester	1/9	1/4½
Leighton Buzzard	1/6	1/2
Letchworth	1/8	1/3½
Lewes	1/7	1/2¾
Lichfield	1/8	1/3½
Lincoln	1/9	1/4½
Littlehampton	1/7	1/2¾
Liverpool	‡§1/11	¶
Llandudno	1/8	1/3½
Llanelly	1/9	1/4½
London—		
12m. radius	*1/10½	1/5½
12-15 m. radius	*1/10	1/5
Long Eaton	1/9	1/4½
Longton	1/9	1/4½
Loughborough	1/9	1/4½
Louth	1/7½	1/3
Lowestoft	1/7	1/2¾
Luton	1/8½	1/3¾
Macclesfield	1/8½	1/3¾
Maidenhead	1/8	1/3½
Maidstone	1/7½	1/3
Malvern	1/7½	1/3
Manchester	1/9	1/4½
Manningtree	1/6	1/2
Mansfield	1/9	1/4½
March	1/6	1/2
Margate	1/7	1/2¾
Market Harborough	1/8	1/3½
Matlock	1/7½	1/3
Melton Constable	1/5½	1/1½
Melton Mowbray	1/8	1/3½
Merthyr	1/9	1/4½
Middlesbrough	1/9	1/4½
Middleton	1/9	1/4½
Middlewich	1/8½	1/3¾
Milford Haven	1/7½	1/3
Morecambe	1/9	1/4½
Morley	1/9	1/4½
Mundesley	1/6	1/2
Nantwich	1/8½	1/3¾
Nelson	1/9	1/4½
Newark-on-Trent	1/8½	1/3¾
Newbury	1/7	1/2¾
Newcastle-on-Tyne	1/9	1/4½
Newcastle-u.-Lyme	1/9	1/4½
New Forest	1/7	1/2¾
Newmarket	1/7	1/2¾
Newport, Mon.	1/9	1/4½
Newport Pagnell	1/7	1/2¾
Northampton	1/9	1/4½
Norwich	1/9	1/4½
Nottingham	1/9	1/4½
Nuneaton	1/9	1/4½
Oakham	1/7½	1/3
Oldham	1/9	1/4½
Ormskirk	1/9	1/4½
Oxford	1/8½	1/3¾
Oxted	1/7½	1/3
Paignton	1/8½	1/3¾
Peterborough	1/8½	1/3¾
Plymouth	1/9	1/4½
Pontefract	1/9	1/4½
Pontypridd	1/9	1/4½
Port Talbot	1/9	1/4½
Portsmouth	1/8½	1/3¾
Preston	1/9	1/4½
Pulborough	1/7	1/2¾
Ramsgate	1/7	1/2¾
Reading	1/8½	1/3¾
Redditch	1/8½	1/3¾
Redhill	1/7½	1/3
Ripon	1/7½	1/3
Rochdale	1/9	1/4½
Rochester	1/8	1/3½
Rugby	1/9	1/4½
Saffron Walden	1/6	1/2
St. Albans	1/8½	1/3¾
St. Helens	1/9	1/4½
St. Neots	1/6½	1/2½
Salisbury City	1/6½	1/2½
Salisbury Plain	1/8	1/3½
Sawbridgeworth	1/7½	1/3
Saxmundham	1/5½	1/1½
Scarborough	1/8½	1/3¾
Scunthorpe	1/9	1/4½
Selby	1/9	1/4½
Sevenoaks	1/7½	1/3
Sheerness	1/7	1/2¾
Sheffield	1/9	1/4½
Shipley	1/9	1/4½
Shoeburyness	1/8½	1/3¾
Shoreham	1/8	1/3½
Shrewsbury	1/8½	1/3¾
Sittingbourne	1/7	1/2¾
Skegness	1/8	1/3½
Sleaford	1/7½	1/3
Slough	1/8	1/3½
Southampton	1/8½	1/3¾
Southend-on-Sea	1/8½	1/3¾
Southport	1/9	1/4½
South Shields	1/9	1/4½
Spalding	1/7	1/2¾
Stafford	1/8½	1/3¾
Staines	1/8	1/3½
Stamford	1/8	1/3½
Stevenage	1/8	1/3½
Stockport	1/9	1/4½
Stockton-on-Tees	1/9	1/4½
Stoke-on-Trent	1/9	1/4½
Stourbridge	1/9	1/4½
Stourport	1/8½	1/3¾
Stowmarket	1/6	1/2
Stratford-on-Avon	1/8	1/3½
Stroud	1/8	1/3½
Sunderland	1/9	1/4½
Sutton Coldfield	1/9	1/4½
Swaffham	1/5½	1/1½
Swanage	1/7	1/2¾
Swansea	1/9	1/4½
Swindon	1/7½	1/3
Tamworth	1/8½	1/3¾
Taunton	1/7½	1/3
Tenterden	1/7	1/2¾
Thames Haven	1/9	1/4½
Thetford	1/6½	1/2½
Thorpe Bay	1/8½	1/3¾
Todmorden	1/9	1/4½
Tonbridge	1/7½	1/3
Torquay	1/8½	1/3¾
Totnes	1/7	1/2¾
Trowbridge	1/6	1/2
Truro	1/6½	1/2½
Tunbridge Wells	1/7½	1/3
Uppingham	1/7½	1/3
Uttoxeter	1/7½	1/3
Wakefield	1/9	1/4½
Walsall	1/9	1/4½
Walsden	1/9	1/4½
Walton-on-Naze	1/7	1/2¾
Ware	1/8½	1/3¾
Warminster	1/6	1/2
Warrington	1/9	1/4½
Warwick	1/9	1/4½
Wellingborough	1/8½	1/3¾
Welwyn	1/8	1/3½
Welwyn Gar. City	1/9	1/4½
Wells (Norfolk)	1/5½	1/1½
West Bromwich	1/9	1/4½
Westcliff-on-Sea	1/8½	1/3¾
Weston-super-Mare	1/8	1/3½
Weybridge	1/8	1/3½
Weymouth	1/7	1/2¾
Whitby	1/8	1/3½
Whitstable	1/7	1/2¾
Widnes	1/9	1/4½
Wigan	1/9	1/4½
Wigton	1/7½	1/3
Willington	1/9	1/4½
Wilmslow	1/9	1/4½
Winchester	1/7½	1/3
Windermere	1/7½	1/3
Windsor	1/8	1/3½
Wisbech	1/6½	1/2½
Witham	1/7	1/2¾
Woking	1/7½	1/3
Wokingham	1/7	1/2¾
Wolverhampton	1/9	1/4½
Woodbridge	1/6½	1/2½
Worcester	1/8½	1/3¾
Workington	1/7½	1/3
Worksop	1/8½	1/3¾
Worthing	1/7	1/2¾
Wrexham	1/8½	1/3¾
Wroxham	1/6½	1/2½
Wycombe	1/8	1/3½
Wymondham	1/6	1/2
Yeovil	1/7½	1/3
York	1/9	1/4½

* Painters 1d. less than other Craftsmen. † Plus 2d. per working day. ‡ Plasterers 1/11½.
¶ Tradesman's Labourers 1/5½. Navvies and General Labourers 1/4½.
§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 248.

PRICES CURRENT OF MATERIALS *

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The prices for soft woods are for cash on delivery, and are subject to adjustment when the increased price of £22 per standard for national released stocks is finally fixed. At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.
Best Stocks 4 18 0
Second Hard Stocks 4 11 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres. A discount of 6d. 1,000 only monthly account.	King's Cross Station per 1,000. s. d.	To sites in W.C. District. per 1,000. s. d.
Pressed bricks	49 0	55 0
Cellular bricks	49 0	55 0
Keyed bricks	51 0	57 0
Cellular Keyed bricks	51 0	57 0
Rustic bricks	69 0	75 0
Cellular Rustic bricks	69 0	75 0
Single Bullnose	69 0	75 0
White bricks	69 0	75 0

White Midhurst Facing Bricks (delivered London site) 3 12 6
Best blue Pressed Staffs. (London Stns.) 8 18 0
Do. Bullnose (London Stns.) 9 8 0
Blue Wire Cuts (London Stns.) 7 15 6
Best Stourbridge Fire Brick (London Stns.):—
2½ in. ..... 8 0 0 3 in. 9 15 0

GLAZED BRICKS. (London Stns.)

Best White Ivory and Salt Glazed Stretcher	26 0 0	D'ble Str'tch'rs	34 10 0
		D'ble Headers	31 10 0
Headers	25 10 0	One side & two ends	35 10 0
Quoins, Bullnose and 4½in. Flats	32 10 0	Two sides & one end	36 10 0
		Splays and Squints	34 0 0

Second Quality, £2 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½" " "	2 6	4" " "	3 1

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

SAND.

Thames Ballast	7 9 per yd.	delivered 2 miles radius Paddington.
Pit Ballast	7 3 " "	
Pit Sand	9 9 " "	
Washed Sand	10 9 " "	
¾ in. Shingle	8 0 " "	
¾in. Broken Brick	12 0 " "	
Pan Breeze	8 3 " "	

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area. £ s. d.
4 ton loads and upwards site ..... Per ton 2 4 6
1 ton to 4 tons site 2 7 6
Alongside Vauxhall in 80 ton lots 2 2 0
"Ferrocrete" Rapid Hardening Cement—
4 ton loads and upwards site 2 10 6
1 ton to 4 tons site 2 13 6
Alongside Vauxhall in 80 ton lots 2 8 0
Stored in Reserved Bins at works. 1/6 per ton extra.
"Aquacrete" Water Repellent, "Blue Circle" cement, 30/- per ton extra or ordinary "Blue Circle" prices.
"Colorcrete" Nos. 1 and 2. Coloured Rapid Hardening Portland Cement 3 14 6
"Colorcrete" not rapid hardening, according to colour, from £7 to £15 10s. per ton.
"Snowcrete" White Portland Cement 9 5 0
Super Cement (Waterproof) 3 14 6

NOTE.—Paper bags will be charged at the rate of 5/- nett per ton. Jute sacks charged 1s. 9d. nett each and 1/6 nett each allowed if returned to works within two weeks, in good condition.
Carriage will be paid by makers on returned empty jute sacks.
Roman Cement £7 5 Keene's Cement, White £6 10 0
Parian Cement 6 10 " " Pink 6 5 0
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 12 6	Sirapite, Coarse	4 3 0
" White	4 0 0	" Finish	4 11 0
Pioneer	4 3 0		

Above prices for 4-ton loads and over London Area.

Best Ground Blue Lias Lime	2 15 0	Grey Stone Lime	2 10 0
		Chalk Lime	2 10 0
Granite Chippings	1 10 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.
Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube ..... s. d. 2 11½
BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station, per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—

	s. d.
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 6
Do. do. delivered on road waggons as above stations, per ft. cube	4 6

White basebed, 3d. per ft. cube extra.
NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.

HOPTON-WOOD STONE— F.O.B. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb.	14 0
Sawn two sides	22 6
HOPTON-WOOD STONE— Sawn three or four sides	27 9

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.

6 in. sawn two sides landings to sizes (under 30 ft. super) per ft.super	5 6
6 in. rubbed two sides, ditto "	6 3
3 in. sawn two sides slabs (random sizes) "	2 7
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) "	1 8½
1½ in. to 2 in., ditto "	1 4½

HARD YORK—
Delivered at any Goods Station, London.

Scrappied random blocks. per ft. cube	6 10
6 in. sawn two sides landings to sizes (under 40 ft. super) per ft.super	5 7½
6 in. rubbed two sides, ditto "	6 9
4 in. sawn two sides slabs (random sizes) "	3 5
3 in. ditto ditto "	2 8
2 in. self-faced random flags Per yd. super	8 9

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube 10 6 to	0 13 0
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube 12 6 to	0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 19 0
Dry Queensland Silky Oak, per ft. cube	0 12 6
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt. 4 7 0 to	5 10 0

SOFT WOOD.

MERCHANTABLE BRITISH COLUMBIAN PINE.

	Minimum. £ s. d.	Maximum. £ s. d.
Scantlings in imported sizes, 2in. by 3in. to 4in. by 11in.	43 10 0	53 0 0

Having secured the Contract— What about the Steel Scaffolding?

TUBULAR

—S & C—

SCAFFOLDING

For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.

The British Steel Scaffolding Co.

731-761, HARROW RD., N.W.10.

Telephone No. Ladbroke 1191 (5 lines).

PLANED BOARDS.

PRIME CLEAR BRITISH COLUMBIAN PINE.

	Per standard. £ s. d.
11in. by 11in. } 11in. by 9in. }	67 10 0

	Per square. s. d.
11in. plain edge flooring	53 0
1¼in. ditto	66 6
11in. tongued and grooved	53 0
1¼in. ditto	66 6

MATCHING.

	Per square. s. d.
¾in.	37 6
¾in.	42 0
1in.	55 0

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 13 6	18 by 10	16 15 0
22 by 12	26 12 0	18 by 9	15 7 6
22 by 11	23 18 6	16 by 10	14 11 6
20 by 12	23 8 0	16 by 8	11 10 0
20 by 10	21 0 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000 f.o.r. London

Best machine-made tiles from Broseley or Staffordshire district		£4 10 0
Ditto hand-made ditto		5 7 6
Ornamental ditto		5 12 6
Hip and valley tiles (per dozen)	Hand-made	0 9 0
	Machine-made	0 8 6

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

R.S. Joists, cut and fitted	£19 5 0
Plain Compound Girders	21 15 0
" Stanchions	24 5 0
In Roof Work	28 15 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.
MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.	19 15 0	⅝ in. to ½ in.	18 5 0
⅜ in.	18 15 0	⅝ in. to 2½ in.	17 15 0

WROUGHT TUBES AND FITTINGS.
Deliveries from works.
Deliveries from London stock further 2½% gross.
Fittings. 10/17

	Tubes. ½"/6" %	Tubulars. ½"/6" %	and 19/24 %	Flanges. ½"/2" %	2½"/6" %
Light weight	55½	—	48	51½	58
Heavy weight	48½	48½	40½	41½	50½
Gavl.lightweight	44½	—	39½	40½	40½
Galv.heavyweight	35½	35½	31½	30½	41½

Tubes and tubulars sizes ¼"/⅛" inclusive, charged extra of 5% less gross.
Fittings. Figs. 25/34 5% less gross discount.
Terms.—Nett cash end of month following date of invoice. Carriage paid on lots of £10 nett value and over.

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzels.	Stop Ends.
3 in.	1/3½	1/0½	4d.
3½ in.	1/5	1/2½	4d.
4 in.	1/5	1/3½	5½d.
4½ in.	1/6	1/6	6½d.
5 in.	1/9½	1/7½	7½d.

O.G. GUTTERS.

3 in.	1/8½	1/5½	4½d.
3½ in.	1/10½	1/5½	5½d.
4 in.	1/10½	1/6	6½d.
4½ in.	1/11½	1/9	7½d.
5 in.	2/5½	2/-	9d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Bends, stock Pipe.	Branches. angles,	stock angles.
2 in.	1/11½	1/3½	1/11½
2½ in.	2/0½	1/6	2/3½
3 in.	2/5	1/10½	2/9½
3½ in.	2/10½	2/3	3/3
4 in.	3/3½	2/8½	3/11½

NETT PRICES.
Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Bends, stock Pipe.	Branches. angle.	stock angles
2 in. per yd. in 6 fts.	3/3½	2/3½	2/9½
2½ in. "	3/11½	2/6½	3/6
3 in. "	4/2½	2/9½	4/2½
3½ in. "	4/3½	3/6	4/10½
4 in. "	4/8½	3/11½	5/7½

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock.

	Bends, stock Pipe.	Branches. angles.	stock angles
3in. per yd.in 9ft. lengths cwt. qr. lbs.	5/1	5/11½	9/5½
4 in. " 1 1 20	7/6	6/9	11/10½
5 in. " 1 2 22	9/1	12/2	18/5
6 in. " 2 0 6	10/9	14/0½	23/0

Gaskin for joining 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(*contd.*)

	Per ton basis in London. £ s. d.			£ s. d.
IRON.—Staffordshire Crown, Merchant quality	16 12 6	to	17 17 6	
IRON—Staffordshire Marked Bars	19 10 0	to	21 10 0	
Mild Steel Bars	17 8 6	to	18 18 6	
Mild Steel Hoops	19 2 6	to	19 12 6	
	Ex Merchant's Stock, per ton (two-ton lots).			
Soft Steel Sheets, C.R. and C.A.—	£ s. d.		£ s. d.	
20 gauge	21 10 0	to	23 17 6	
24 gauge	21 15 0	to	23 12 6	
26 gauge	22 10 0	to	24 7 6	
Galvanised Corrugated Sheets, 6 ft. to 9 ft.—				
20 gauge	23 11 3	to	24 16 3	
24 gauge	24 1 3	to	25 6 3	
26 gauge	25 6 3	to	27 1 3	
Galvanised Flat Sheets, C.R. and C.A.—				
20 gauge	25 1 3	to	26 18 9	
24 gauge	25 11 3	to	27 8 9	
26 gauge	26 16 3	to	28 13 9	
	Per ton.			
	£ s. d.		£ s. d.	
Cut Nails, 3 in. and up	23 10 0	to	25 0 0	
	ALL NETT.			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 1
Strong sheet	,,	1 3
Thin	,,	1 4
Copper nails	,,	1 3
Copper wire	,,	1 3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
29/- 45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in. ¾ in.
40/— 59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
31/- 44/6 75/- 175/- 250/- 396/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
42/6 65/- 102/- 195/- 210/- 510/- per doz.

DOUBLE NET BOILER SCREWS.

½ in. ¾ in. 1 in. 1¼ in. 1½ in. 2 in.
7/6 9/- 14/- 24/- 37/6 54/- per doz.

HEAVY CROYDON BALL VALVES.

½ in. ¾ in. 1 in. 1¼ in. 1½ in.
33/6 55/6 85/- 165/- 237/- per doz.

CAPS AND SCREWS.

1¼ in. 1½ in. 2 in. 3 in. 3½ in. 4 in.
9/- 11/- 16/6 29/- 42/- 45/- per doz

BRASS FERRULES OF SLEEVES.

1¼ in. 2 in. 3 in. 3½ in. 4 in.
9/6 11/6 20/6 26/- 37/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

1¼ in. 1½ in. 2 in. 3 in.
8 lb. Lead P. .. 17/6 23/- 32/6 66/6 per doz.
8 lb. Lead S. .. 21/6 27/6 39/6 73/- per doz.

SOLDER.—Plumbers, 1/2. Tinmen's, 1/4. Blowpipe, 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 5 4
Boiled ,, ,, in drums	,,	0 5 7
Turpentine, in drums (10 gals.)	,,	0 5 3
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks).		61 0 0

Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.

GENUINE WHITE LEAD PAINT "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14 lb. tins) not less than 5-cwt. lots per ton delivered 83 10 0

Red Lead. Dry (packages extra)	per ton	52 0 0
Best Linseed Oil Putty (1 ton lots)	per cwt.	0 17 1½
Size. XD quality	fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	,,	0 16 0
Fine Copal	,,	0 18 0
Pale Copal	,,	1 0 0
Pale Opal Carriage	,,	1 4 0
Best do.	,,	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	,,	0 18 0
Fine Copal Cabinet	,,	1 2 0
Fine Copal Flatting	,,	1 0 0
Hard Drying Oak	,,	0 18 0
Fine Hard Drying Oak	,,	0 19 6
Fine Copal Varnish	,,	1 0 6
Pale do.	,,	1 12 0
Best do.	,,	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY (O.Q.) AND SELECTED GLAZING QUALITY (S.Q.).

PER FOOT SUPER.

In sizes not exceeding 80 in. long or 48 in. wide or 110 united inches.

	O.Q.	S.Q.
18 oz. in 300 ft. cases	2½d.	2¾d.
24 oz. ,, 200 ft. ,,	3½d.	4d.
26 oz. ,, 200 ft. ,,	3¾d.	4¼d.
32 oz. ,, 200 ft. ,,	5¼d.	6¼d.
24 oz. ,, 300 ft. ,,	3¾d.	4¼d.
26 oz. ,, 300 ft. ,,	3¾d.	4¼d.
32 oz. ,, 300 ft. ,,	5¼d.	6¼d.
18 oz. Obscured Sheet		3¼d.
24 oz. Obscured Sheet		4¼d.
Fluted, 21 oz.		9d.
Enamelled, 18 oz.		5¼d.
,, 24 oz.		6¼d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ¼ in.	5¼d.
Rough cast double rolled, ⅛ in.	6¼d.
Rough cast double rolled, ¼ in.	6¼d.
Figured rolled, and Cathedral, white	6¾d.
Figured rolled and Cathedral, tinted	9¼d.
Rolled Sheet	6d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ¼ in. thick	0 10½

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Wire Rolled, ¼ in. thick	0 9½
Wired Cast, ¼ in. thick	0 9½
Georgian Wired Cast	0 10
"Calorex" Sheet, 21 oz.	2 6
,, ,, 32 oz.	4 0
,, Cast, ¼ in. thick	0 10
,, ,, ⅜ in. thick	1 0
,, ,, ½ in. thick	1 2
Non Actinic Glass, ¼ in. thick	0 9½
,, ,, ,, ⅜ in. thick	1 0
,, ,, ,, ½ in. thick	1 2

"VITA" GLASS.

	Per ft. s. d.
"Vita" Plate Glass, about 3/16 thick:	
To 7 ft. super	5 0
Over 7 ft. super	7 6
"Vita" Sheet Glass, about 18/20 oz.	2 0
Cathedral "Vita" Glass:	
¼" thickness	2 0
3/16" ,,	3 0
3/16" Georgian Wired "Vita" Glass	3 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	34 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills ..... per ton £19 10 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from February 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/9½	1/9	1/8½	1/8	1/7½	1/7
Labourers	1/4¼	1/4	1/3½	1/3¼	1/2¾	1/2½

Aberdeen	A	Dumfriesshire	A²	Inverness	*
Ayrshire	A	Dundee	A	Inverurie	A¹
Banff	B	Dunoon	A	Kincardineshire	A²
Berwickshire	A²	East Fife	A	Kinross-shire	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A
Broughty Ferry	A	Edinburgh	A	Midlothian	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A
Doune	A	Forfarshire	A²	Moray and Nairn	B
Dunblane	A	Glasgow	A	Newport	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²
Dumfries	A¹	Hamilton	A	Perth	A

Perthshire	A²
Peterhead	A¹
Renfrewshire	A
Rothesay	A
Roxburghshire	A²
St. Andrews	A
Selkirkshire	A²
Stewartry	A²
Stirlingshire	A
Stornoway	A²
Tayport	A
West Lothian	A

* This town has its own rates: Masons, 1/7½; Carpenters, 1/7½; Slaters, 1/7½; Plumbers, 1/8; Plasterers, 1/8½, but 1/9 is paid owing to the scarcity at present; Painters, 1/7½ and Labourers, 1/3.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 246

THE SCOTTISH BUILDER

NEW BUILDINGS

GLASGOW. — BUILDING. — The Dean of Guild Court has approved of the following plans: W. Beardmore and Co., Ltd., canteen at their works—architect, W. E. Dickie; C. F. Howden, extensions to their works—architects, Cowiesons, Ltd., 18, Charles-st., St. Rollox; J. Thomson and Son, 134, Drygate, drying shed at their premises—architect, J. Austin Laird, 55, West Regent-st.; Messrs. Grant Bros. (Meat Canners), Ltd., cloakrooms and lavatories at 706-717, Garscube-rd.—architect, J. A. Russell, Cromwell-st.

GLASGOW. — CLEANSING STATIONS. — The Corporation, from plans by the City Engineer, Mr. Thomas Somers, Municipal Buildings, are to construct a new cleansing station, etc.

GLASGOW.—BUILDING.—Plans have been prepared by the staff architects, Messrs. W. Beardmore & Co., Ltd., Parkhead, for new office buildings.—Plans prepared by the British Electrical Co., Ltd., 72, Bemmell-street, and Rothendale-road, Manchester, for new boiler-house.—The Colville Construction Co., Ltd., Glengarnock, will carry out for the Steel Company of Scotland, Ltd., extensions.

SCOTSTOUN.—BUILDING.—Plans have been prepared by Messrs. McNair & Elder, 274, St. Vincent-street, Blythswood, Glasgow, for alterations and additions for Messrs. Yarrow & Co., Ltd.—Plans prepared by the architectural staff of the Blythswood Shipbuilding Co., Ltd., South-street, for new buildings.

Now Published — Sixth Edition
Revised throughout and greatly enlarged, superseding all previous issues.

HOW TO ESTIMATE
FOR EVERY CLASS OF BUILDING WORK
By J. T. REA.

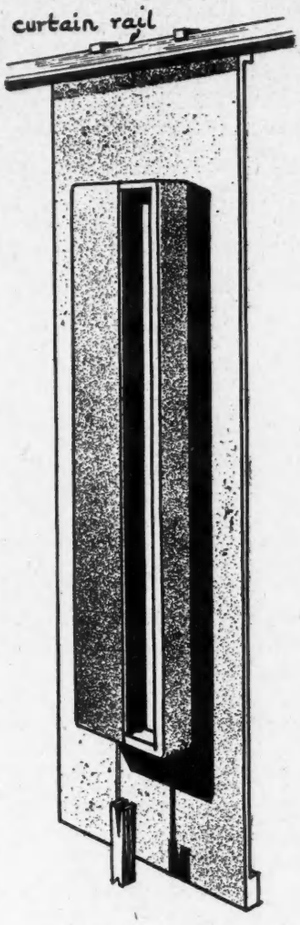
Containing 730 pages with over 600 illustrations.
Large 8vo. Cloth gilt. Price 16/- net. (By post 16/9).

The 6th edition of this unique work represents, in fact, quite a new undertaking, brought up-to-date in every way, including a large amount of original memoranda, complete revision of prices, examples of analysis, and fresh details of costing, involving many thousands of figures, hundreds of calculations, and immense labour and research. Being self-contained, it avoids the weary hunt in other books for the vital, detailed knowledge which is usually hard, if not often impossible to find.

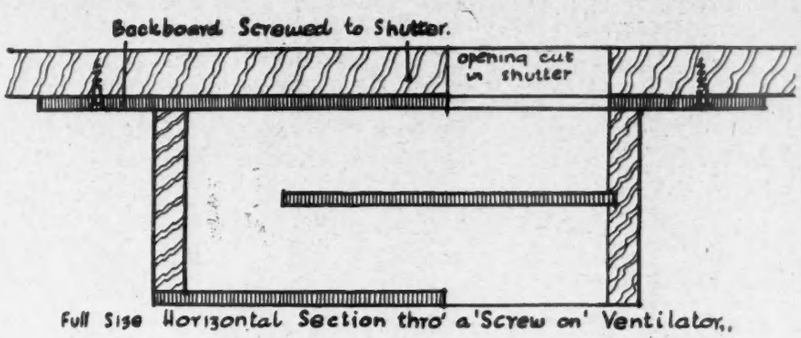
B. T. BATSFORD, LTD.
Architectural Publishers,
15, North Audley Street, London, W.1.

Ballast, Sand and Allied Trades Association.

The Ballast, Sand and Allied Trades Association has just published a new list of members, No. 27, dated August, 1940. Forming an excellent index to ballast and sand suppliers in all parts of the country, it is arranged according to counties, so that immediate reference can be made to suppliers in a particular district. In addition, telephone numbers are given. Copies may be obtained from the Association at their temporary address, 2, Wellesley-road, Twickenham, Middlesex. Telephone: Popesgrove 1791.



A BLACK-OUT VENTILATOR.
(See this page.)



SECTION THROUGH BLACK-OUT VENTILATOR.

TRADE NEWS

A Black-out Ventilator.

A practical adaptor for shuttered windows, permitting the ventilation of factory, camp, hospital, civic and domestic buildings under black-out conditions has been placed on the market by Var-Vent, 83, Essex-road, Islington. The principle upon which this "Vardy" ventilator operates is made clear by the illustrations. It may be applied to either curtained or shuttered windows (either hung from the curtain rail or screwed in the shutter), or it may also be obtained in concrete to let into walls. The ventilator, which has been approved by Government Departments, guarantees perfect ventilation. Its overall size is 2 ft. 2½ in. by 7 in. wide. Full details are available from the company.

Savile-row Police Station.

We are informed that the whole of the tanking to the basement of this building (illustrated in our last issue), a job of approximately £1,700, was carried out by the Val de Travers Asphalte Paving Co., Ltd.

NEW BUILDINGS IN LONDON

STAINES. — BUILDING. — The following plans passed by U.D.C.: Staines Linoleum Manufacturing Co., boiler house; Renshaw Foundry, Ltd., additions to factory.

WESTMINSTER. — IMPROVEMENTS. — The Housing Committee of the City Council recommend repair works at Duke's House, Princess Mary House, Doneraile House and Cheylesmore House, at £1,430, and the works are to be carried out as follows: At the Grosvenor estate, by Messrs. Yeomans and Partners, Ltd., and Ebury Bridge estate extension, by Messrs. Walter Lilley and Co., Ltd.

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Biggar.—Additions to mansion house. Robert Ewan, architect, 19, Wellington-st., Blythswood, Glasgow: Demolition, brick and mason, *W. Plenderleith, Symington.

Billingham-on-Tees. — Extensions to fire station: *Stephen Coates, Ltd., Longbourgh-place, Middlesbrough.

Boston. — Potato-drying factory, for Farmers' Marketing and Supply Co., Ltd., Cereal House, 58, Mark-la., London, E.C.3. H. H. Goodman, L.R.I.B.A., architect, Brougham-chams., Wheeler-gate, Nottingham: *F. Peck, Ltd., Boston.

Bulford.—Laying granolithic floor at Y.M.C.A. buildings, for Board of Management. Hubert Thomas, A.R.I.B.A., architect, Prudential-bldgs., 36, Dale-st., Liverpool: *Terradura Flooring Co., Ltd., 233, Tower-building, Water-st., Liverpool.

Christchurch.—Rendering floor and sides of jumpers shelter trenches, for T.C. E. B. Wise, B.E. and S.: *Bryant & Trowbridge, Clarendon-rd., Christchurch, £32 7s.

Coulsdon and Purley.—Works for U.D.C.: Repairs to roofs and front entrance porch, Coulsdon Court golf house:—

	Main building. £ s. d.	Porch. £ s. d.
*Dawson & Son, Wallington ...	242 0 0	44 0 0
Roberts & Burling, Ltd., Croydon ...	250 0 0	50 0 0
Roberts Adlard & Co., Ltd., Croydon	265 0 0	55 0 0
T. Lily & Sons, Ltd., Croydon ...	295 0 0	58 0 0
C. Goddard & Co., Ltd., Finchley...	493 2 8	

Drainage work, Lacy Lodge, Lacy Green, Coulsdon:—
Thomas Ailby, Ltd., Purley... £143 9 0
*C. Plater, Coulsdon 125 7 0

Finsbury.—Works for B.C.: Demolition of premises, junction of Bath-st. and Radnor-st.: ‡Gee, Walker & Slater, Ltd., 3, Fitzmaurice-pl., W.1, £165; resurfacing Garnault-pl., *Neuchatel Asphalte Co., Ltd.

Friern Barnet.—Treatment of chairman's and members' rooms at new municipal offices, for U.D.C.: *Fredk Sage & Co., Ltd., £495 12s. 6d.

Glasgow.—Alterations and additions and new installation and lift, etc., for J. & P. Stevens, Ltd. J. Baird & James Thomson, architects, 150, Holland-st. W. Howit & Sons, quantity surveyors, Glasgow Dean of Guild-chams., Buchanan-st.: Excavation, brick and mason, *W. Shaw & Son, Ltd., Glasgow.

Glasgow.—Works for Corporation: Work at Cathcart Bridge (T. Somers, City E.), *Norwest Construction Co., Ltd., £987 10s. Painting of schools (J. MacNab, architect. 129, Bath-st.): St. Patrick's girls' and infants', *MacCulloch & Co., £972 10s. 5d.; St. Saviour's, *Johnstone & Robertson. £602 14s. 6d.: Sir John Gilmour's and infants', *J. & J. Grant, Ltd., £613 17s. 7d.; Oatlands, *MacLean & Stevens, £678 8s. 8d.; St. Constantine, *J. Paul & Sons, £509 6s. 6d.; Townhead, *J. Hodgin & Co., Ltd., £706 18s. 8d. (All of Glasgow.)

Liverpool.—Supply of bricks for Corporation:—*Accrington Brick and Tile Co., Accrington.

¶London (Air Ministry).—Contracts placed for the week ended August 24:—
Heating work, Hopes Heating and Lighting, Ltd., Birmingham; Brightside Foundry and Engineering Co., Ltd., Birmingham; and F. G. Alden, Ltd., Oxford.
Civil engineering work, John Mowlem and Co., Ltd., London.
General maintenance work, J. F. Booth and Son, Banbury, Oxon, and H. Goodsell, Maidstone, Kent.
Electrical work, Electricity House, Ltd., Leeds.
Air conditioning work, Young, Austen and Young, Ltd., London.
Building work, J. Cryer and Sons, Fleetwood.
Marine work, John Deheer, Ltd., Bolton.
Structural steelwork, Tees Side Bridge and Eng. Works, Ltd., Middlesbrough; Palmers

DON'T TENDER UNSUCCESSFULLY
SECURE CONTRACTS WITH
BEITO SKEL
THE STEEL SCAFFOLDING CO., LTD.
"BIG BEN TOWERS," 23, OATLANDS DRIVE, WEYBRIDGE, SURREY.
'Phone: Walton-on-Thames 614 and 615.

Hebburn and Co., Ltd., Hebburn-on-Tyne; P. and W. MacLellan, Ltd., Glasgow; Motherwell Bridge and Eng. Co., Ltd., Motherwell; Braithwaite and Co., Engrs., Ltd., London; Cleveland Bridge and Eng. Co., Ltd., Darlington; Head Wrightson and Co., Thornaby-on-Tees.

Civil engineering work, Kettlewell, Sons and Co., Ltd., Hull; Thos. Lowe and Sons, Ltd., London, Howard Farrow, Ltd., London; M. J. Gleeson, Ltd., North Cheam; Henry Boot and Sons, Ltd., Sheffield; R. Costain, Ltd., London; Roads and Public Works, Ltd., London.

Building work, F. G. Minter, Ltd., London; Gee, Walker and Slater, Ltd., London; John Cawley, Ltd., Nottingham; and Thomas and Edge, Ltd., London.

Building and civil engineering work, John Laing and Son, Ltd., London.

Civil engineering work, Taylor Woodrow Construction, Ltd., Southall; and Kent and Sussex Contractors, Ltd., Erith, Kent.

¶**London (War Dept.).**—Contracts placed during week ended Aug. 24 :—

Warwickshire : Additional hutting, T. J. H. Hartwell & Son, Stratford-on-Avon.

Yorkshire : Heating work, Brightside Foundry and Engineering Co., Ltd., Eccles-field, Sheffield.

Northamptonshire : Building work, Concrete Hutments, Ltd., 2, Central-bldgs., Westminster, S.W.1.

Yorkshire : Building work, G. Dougill & Son, Ltd., Chesnut-st., Darlington; and Dunhill Bros., 387, York-rd., Leeds.

Yorkshire : Miscellaneous work, W. Birch & Sons, Spen-la., York.

Yorkshire (three contracts) : Temporary camps, South Yorkshire Woodworking Co., Ltd., Watch House-la., Doncaster.

Yorkshire : Hutting, King & Sons, "Beaconsfield," Thorne-rd., Edenthorpe, Doncaster.

Gloucestershire : Hutments, H. J. Walker & Sons, Station-rd., Fishponds, Bristol.

Essex : Building work, Fielder Estates (Canvey), Ltd., High-st., Lakeside Corner, Canvey.

Ayrshire : Building work, Wm. Paton & Sons, Ltd., 19, Kyle-st., Ayr.

Renfrewshire : Building work, P. & W. Anderson, 64, Douglas-st., Glasgow.

Renfrewshire : Miscellaneous work, Munro & Junor, 10, Spindlehowe-rd., Uddingston, Glasgow; and Crowley, Russell & Co., Ltd., 21, Blythswood-sq., Glasgow.

Lancashire : Building work, Moston Brick and Building Co., Ltd., Kenyon-la., Moston, Manchester.

Lancashire : Miscellaneous work, C. Jeffries, 3, Entwistle-av., Davyhulme, Manchester.

Hampshire : Miscellaneous work, P. W. Wilkins & Son, Ltd., Brunswick-sq., Torquay; and Brazier & Son, Ltd., 57, Above Bar, Southampton.

Wiltshire : Hutments, F. Rendell & Son, Ltd., St. John-st., Devizes.

Manchester.—Work for City Council : Alterations, etc., to kitchen lift in town hall, *A. & P. Steven, Ltd., Glasgow; demolishing certain properties, *R. Clarkson, of Stockport; *S. Looms, *D. Gilmore, Ltd., and *L. Jagger, Ltd., of Manchester; rewiring of public open spaces at Victoria-bldgs., *W. H. Smith & Co., Ltd., Manchester; construction of duplicate sludge pumping station at sewage works, *Direct Works Staff of Rivers Dept.

Middlesex.—Tar-paving and tarmacadam work on school clinic site, Minet estate, Hayes, for C.C. : †Field & Palmer, Ltd., Wood Green, £148 7s. 9d.

Ogmore and Garw.—Alterations and additions to laundry block, for U.D.C. A. H. Jenkins, P.A.S.I., E. and S. Quantities by E. and S. :—*T. F. Howells, Ltd., 83, Bartlett-st., Caerphilly, Glamorgan, £731 8s. 3d.

Ramsbottom.—Reconstruction after fire of Hazelhurst Wire Works, for F. D. Sims, Ltd. R. Byrom, A.R.I.B.A., architect, Victoria-bldgs., Silver-st., Bury : *Warburton & Haworth, Peel Brow, Square-st., Ramsbottom, near Bury.

Rochdale.—Structural alterations and extensions to fire station, for T.C. S. H. Morgan, B.S. : †B. Clegg, 39a, High-st., Rochdale.

Selby.—Potato factory, for Farmers' Marketing and Supply Co., Ltd., Cereal House, 58, Mark-lane, London, E.C.3. H. H. Goodman, L.R.I.B.A., architect. Broughamchams., Wheeler-gate, Nottingham : *Squires & Sons, Ltd., Portholme-wks., Selby.

Settle.—Rebuilding paper mills for J. Roberts & Sons (Langcliffe), Ltd. James Hartley & Son, architects, Swadford-chams., Skipton : Bricklayer, mason, joiner, painter, plumber, glazier, *Brassington, Sons & Co., Ltd., Bridge End Mills, Settle; steel windows, *Henry Hope & Sons, Ltd., Halford-wks., Smethwiek, Birmingham; steelwork, *H. Barret & Sons, Ltd., 37, Thornton-rd., Bradford; reinforced concrete engineers, *J. Cooke (Huddersfield), Ltd., Little Royd, Huddersfield; bitumen covering to concrete roofs, *The Northern Asphalte and Roofing Works Co., Ltd., 153, Cardigan-rd., Headingley, Leeds, 6.

Tadcaster.—Two fire stations, one at Tadcaster and one at Micklefield, near Leeds, for R.D.C. J. Worthington, E. and S. : *Smith & Blakeney, Galway-st., Leeds, 11.

Tadcaster.—External painting of 16 houses at Moor-la., Copmanthorpe, for R.D.C. J. Worthington, E. and S. :—

Wm. Fredk. Milner, Copmanthorpe	£90 0
Topham and Son, Tadcaster ...	75 12
*J. Marshall and Co., Ltd., Tadcaster	67 3

West Riding.—New ceiling, Elland South End School, for E.C. J. H. Crabtree, divisional clerk, Allen House, Sowerby Bridge. H. Wormald, A.R.I.B.A., Education Architect, County Hall, Wakefield :—

J. E., R. & T. Crowther, Elland	£209 10 0
A. Smith, Green-la., West Vale	204 7 0
J. W. Simpson (Exors.), Elland	203 19 0
*A. O. Crowther, Greetland, near Halifax	179 17 5

FLOORINGS
'phone
BAYswater 0163
or send your enquiry for
Wood Block, T & G Strip,
Parquet (in various designs)
and Composition Floorings.
TO
TURPINS PARQUET FLOORING Co. Ltd.
25 NOTTING HILL GATE, W.11
Established 1866

ROADS LIVERSEDGE INTERWOVEN HIGH TENSILE STEEL FABRIC STRUCTURES
The Liversedge Reinforced Concrete Engineering Co. Ltd.
15, Breams Buildings, E.C.4. Tel.: Hol. 3718, 6467

Boyle's Patent "Air-Pump" Ventilator
OVER TWO MILLION IN USE.
ROBERT BOYLE & SON,
Ventilating Engineers, 65, HOLBORN VIADUCT, LONDON, E.C.1. Tel. Central 4583.

HOSPITAL & SCHOOL STOVES
SOLE MAKERS OF
WRIGHT'S IMPROVED AND ALSO SHORLAND'S PATENT WARM AIR VENTILATING PATTERNS.
GEO. WRIGHT (LONDON) LTD
19 NEWMAN ST. OXFORD ST. LONDON. W.1.

BUY BRITISH
FLOORINGS
WOOD BLOCK PARQUET
SOLID T & G HARDWOOD
PANELLING
POINT PLEASANT LONDON S.W.18
Stevens & Adams Ltd.
PHONE PUTNEY 5611 (6 lines)

• G·V·D •
LIGHTING
We are pioneers of efficient, effective and economical lighting. Correct lighting principles are being better appreciated, thanks to Mr. G. V. Downer's perseverance.
BETTER LIGHT—BETTER SIGHT.
In our case this does not mean more light, but better distribution, diffusion and freedom from glare and shadows. These can be obtained with *a saving of 50% on your present lighting bill* by using our system.
G·V·D ILLUMINATORS LTD.
ALDWYCH HOUSE, LONDON, W.C.2. Tel.: HOLborn 7277-8

For SHELTERS
consult
W. & M. NEGUS, LTD
STATION WORKS
KING JAMES ST., S.E.1
WATerloo 5474